

An Ecological Approach to the Prevention of
Anxiety Disorders during Childhood

By

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Fear is, I think, the greatest mental suffering for children
- *George Sand (1854-1855)*

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Declaration of Originality

I declare that this thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution, and that, to the best of my knowledge, this thesis contains no material previously published or written by another person, except where due reference is made in the text of this thesis. Please note that modified versions of chapters 5 and 6 have been accepted and submitted for publication respectively.

Lowry-Webster, H. M., Barrett, P. M. & Dadds, M.R. (2001). A universal prevention trial of anxiety and depressive symptomatology in childhood: Preliminary data from an Australian study. Behaviour Change, 18(1), 36-50.

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Abstract

Research shows that anxiety disorders are common and problematic in children. Treatment studies demonstrate that cognitive-behavioural interventions for children can successfully minimise these problems. Further, when implemented as early intervention or prevention programs, these interventions can prevent the onset of anxiety problems in 7 to 14 year olds and reduce existing levels of anxiety. This type of preventive approach has enormous potential for improving community mental health in a low cost model of service delivery. Yet, to develop this as a viable service model, these programs need to be evaluated under ‘real world’ conditions as opposed to specialist university clinical teams.

In this research, the long-term effectiveness of an ecological model of the prevention of anxiety disorders for children was conducted. In the first study, teachers ($N = 17$) were trained intensively in the principles of anxiety and the FRIENDS anxiety prevention program (Barrett, Lowry-Webster & Holmes, 1999). Measures were taken of the PROXIMAL effects of training on the knowledge and self-efficacy of participating teachers at two points in time. Compared to teachers in a control group ($N = 17$) and a group comprised of psychologists regarded as experts in the FRIENDS anxiety program ($N = 22$), trained teachers demonstrated significant increases in the levels of knowledge and self-efficacy at time two. These increases approached levels exhibited by experts in terms of knowledge, and were not significantly different from experts in their levels of self-efficacy to implement the FRIENDS program following training. This study also explored the quality or fidelity of program implementation by these trained teachers (INTERMEDIATE EFFECTS). Results demonstrated that trained teachers implemented

the program with high levels of integrity in accordance with the FRIENDS intervention manual.

The second study sought to investigate the outcomes for participating children in terms of actually preventing and reducing existing levels of anxiety. Also of interest was the impact this intervention had on levels of depression. Participants were 594 children aged 10-13 years from 7 schools in Brisbane Australia. Children, and parents reported on children's social, emotional and behavioural characteristics at three-assessment points over 12 months. Results were examined universally (for all children) and for children who scored above the clinical cut-off for anxiety at pre-test. Results revealed that children in the FRIENDS intervention group reported fewer anxiety symptoms regardless of their risk status at posttest. In terms of reported levels of depression, only the high anxiety group who completed the FRIENDS intervention evidenced significant improvements at posttest. The results indicated that intervention gains were maintained over a period of 12 months, as measured by self-reports and diagnostic interviews. Moreover, evidence of a prevention effect was also demonstrated, with a significantly greater percentage of children in the control group progressed to "at risk" or "remained at risk" compared to children in the intervention group. Additionally, 85% of children in the intervention group who were scoring above the clinical cut-off for anxiety and depression were diagnosis free in the intervention condition at 12-month follow-up, compared to only 31.2% of children in the control group. Implications of these findings are examined, alongside limitations of the study and directions for future research.

CHAPTER ONE

What is Childhood Anxiety?

Our understanding of the nature of anxiety in children has advanced considerably since the publication of the third edition of the Diagnostic and Statistical Manual of Mental disorders (DSM-III: American Psychiatric Association, 1980) more than 20 years ago. Anxiety symptoms and disorders are now recognised as one of the most common psychiatric problems in this age group, with anxious children manifesting levels of symptom severity and impairment akin to adult anxiety disorders (Essau, Conradt & Petermann, 2000; Last, 1993; Wittchen, Nelson & Lachner, 1998). Furthermore, there is now clear evidence that anxiety disorders tend to persist into adulthood if left untreated and may lead to the development of other psychiatric disorders over time (Anderson, Williams, McGee, & Silva, 1987; Last, Perrin, Hersen & Kazdin, 1996; Leonard et al., 1993; McGee et al., 1992; Reynolds, 1981; Schneier et al., 1992; Verhulst, Van de Ende, 1992; Williams et al., 1992)

The first objective of this chapter is to provide a general overview of childhood anxiety. Accordingly, this will include a review of phenomenology, prevalence, age of onset, stability of anxiety over time, and comorbidity issues. Chapter two aims to review major aetiological models (or risk factors) identified in the development and maintenance of anxiety symptoms and well as protective factors which help to foster individual resilience. Chapter three presents the current empirical treatment and prevention literature providing an historical context for the present PhD study, which aims to investigate the effectiveness of a universal prevention trial for anxiety disorders implemented by trained school teachers. Chapter four will describe and discuss the

rationale, and methodology of studies one and two respectively. Chapter five and six presents the empirical studies of the PhD research. Finally, chapter seven will summarise and integrate the findings with previous research, outlining implications and areas for future research.

Childhood Anxiety Defined: Phenomenology

Anxiety can be defined as a series of emotional reactions activated from the anticipation of a real or imagined threat to the self. While anxiety reactions may take various forms, generally they are organised around three components, which were originally described within Lang's (1968) tripartite model. That is, a motor or behavioural response, a subjective or cognitive response, and a physiological response (Zingbarg & Barlow, 1996). At the behavioural level, and usually in the presence of the feared stimuli, anxiety can be characterised by escape or avoidance behaviours, restlessness (e.g. pacing), clinging to significant others, and occasionally, stuttering. Immobility or urgent pleas for support may also be seen (Fonseca & Perrin, 2001). At the cognitive level, anxiety is characterised by fearful apprehension, focusing attention on threat cues, and distorted cognitions about one's performance or safety. At the physiological level, anxiety is defined by heightened autonomic arousal such as increased heart rate and respiration, skin conductance, and perspiration.

It is imperative to note that anxiety, in mild to occasionally moderate levels, is considered a normal emotion, which serves both an adaptive and protective role. That is, anxiety alerts an individual to novel and potentially threatening situations activating the "fight or flight response" consequently protecting them from harm or danger (i.e. physical and social danger) (Heimberg & Barlow, 1991). However, one of the dilemmas

in researching childhood anxiety disorders is to define what constitutes an anxiety disorder, in comparison to normal anxiety. This has led to a number of researches investigating the developmental progression of normal anxiety. For example, Gullone (2000) conducted an extensive review of the literature in regards to normal fear over the past 100 years. She reports that different fears arise at different developmental stages. For example, as the senses develop in infancy, fears of loud noises, loss of support and high places are evident (Scarr & Salapatek, 1970). As cognitive processes develop so too do fears surrounding strangers and separation from caretakers (Klein, 1994). From the ages of two and six there is an increase in fears of animals, the dark, imaginary creatures, bodily injury, fire, robbers and death (Gray, 1987; Jersild & Holmes, 1935). Coinciding with the start of school, children also develop fears surrounding their performance and achievement. For many children, these fears continue into adolescence. From the age of 10, fears regarding social comparison, physical appearance, personal conduct and school examinations predominate (Croake, 1969). During the period of adolescence, global fears about economic stability and political concerns appear (Angelino & Shed, 1953) all of which appear to continue into adulthood. Thus, as a consequence of children's developmental experiences and increasing cognitive abilities, the content of their fears changes over time, with the focus generally moving with age from concrete, external fears, to increasingly internalised and abstract anxieties.

Past studies on the prevalence of fears in children and adolescents have shown that childhood fears are quite common (King et al., 1989; Ollendick, Matson & Helsel, 1985; Slee & Cross, 1989). In a review of the research, Ferrari (1986) found developmental changes in the number of fears in children. In general there was a

consistent decline in the number of fears with age, though between 9 and 10 there was some tendency for the number of fears to increase. Age related decreases were also found in a study conducted by Ollendick, Matson, and Helsel (1985). In their study, children aged 7-9 years reported an average of approximately 14 fears, while 16-18 years olds reported averages of 11 fears. Longitudinal studies have added support to the idea that normative fears are relatively transitory (Draper & James, 1985, Gullone & King, 1997). These findings suggest that decreases in fear appear to be most marked in younger years and this continues at a fairly stable rate to approximately age 11 or early adolescence. At this time the stability of fears, particularly fears surrounding danger or death becomes apparent. Another consistent finding is that girls report a greater number of fears than boys (Burnham & Gullone, 1997; Gullone & King, 1993; Gullone, 2000). This is particularly the case for older children, whereas the findings are less conclusive for pre-school and elementary school children (Draper & James, 1985; Gullone, 2000). However, the question of whether these differences in self-reported fears are due to actual gender differences or socio-cultural factors remains unclear and further research is needed before definitive conclusion can be drawn.

Research into cross-cultural differences and similarities in regard to reported fears has also made important contributions to our understanding of what can be regarded as 'normal' fears during childhood. The most common fears (e.g., fears surrounding death and danger) have been found consistently across different 'Western' cultures (Burman & Gullone, 1997; Davidson, White, Smith & Poppen, 1989; Gullone & King, 1993; King et al., 1989; Ollendick, 1983). For example, in a study by Burnam and Gullone (1997) eight of the ten most common fears were the same in samples of Australian and American

youth. Moreover, with regard to age, several cross-cultural studies have also supported the finding that older children report significantly fewer fears than younger children (Gullone, 2000).

While normal fears are common, age appropriate, and usually transitory in nature, anxiety disorders can be differentiated from normal fears on the basis of several criteria. Anxiety disorders are diagnosed when a child experiences anxiety that is not age- or stage- specific, when it persists over an extended period of time, and/or which becomes so intense as to severely interfere with the child's functioning at home, at school or in peer or family relationships (Gullone, 1996; Miller, Barrett & Hampe, 1974). This being the case, anxiety and anxiety disorders are typically conceptualised as varying quantitatively along the same continuum, with the degree of distress, impairment in functioning, and/or interference with daily life, discriminating between what is 'normal and adaptive' and what is problematic. This chapter will now turn to a brief description of DSM-IV anxiety disorders.

Description of DSM-IV Anxiety Disorders

To account for the diversity of anxiety symptoms presented, and to provide clear and simple guidelines to group them, the Diagnostic and Statistical Manual of Mental Disorders was developed. Now in its fourth edition (DSM-IV; American Psychiatric Association, 1994) this system essentially views childhood anxiety disorders as downward extensions of adult anxiety disorders (Schniering, Hudson, & Rapee, 2000). The DSM-IV lists only one anxiety disorder as specific to childhood and adolescence: Separation Anxiety Disorder. The most common anxiety disorders during children as defined by the DSM-IV are Separation Anxiety Disorder, Specific Phobia, Generalised

Anxiety Disorder, Social Phobia, and Obsessive-Compulsive Disorder. In contrast, research suggests that generalised anxiety disorder, panic disorder and social phobia become more prevalent during adolescence (King, Ollendick, & Mattis, 1994; Last, Hersen, Kazdin, Finkelstein, & Strauss, 1987). This chapter will now turn to a brief explanation of each of these anxiety disorders.

Separation anxiety disorder (SAD) is characterised by excessive anxiety surrounding the separation from familiar surroundings or major attachment figures. The separation anxious child may experience sleep disturbances and nightmares involving themes of separation or loss, crying and pleading when parents do leave, clinging to caregivers or persistent tracing of major attachment figures. Furthermore, these children often display disruptions in behaviours and or somatic complaints during separation, persistent fears of being alone and avoidance of separation from caregivers, which often leads to school refusal (Last, Hersen, Kazdin, Finkelstein & Strauss, 1987). Hence, SAD interferes with the child's functioning and everyday life preventing them from engaging in autonomous activities such as sleepovers, attending day care, or going to school. Community prevalence studies suggest that between 3.5. – 4.1 % of children meet the diagnostic criteria for SAD (Anderson, Williams, McGee, & Silva, 1987; Benjamin, Costello & Warren, 1990). Notably, the prevalence rates drop incrementally in adolescent samples to 0.6-2.4% (Bowen, Offord, & Boyle, 1990; Verhulst, Van der Ende, Ferdinand & Kasivs, 1997). It has been suggested that the decrease in frequency of SAD with age may be due to a change in anxiety presentation from the period of childhood to adolescence (Schniering et al., 2000), especially given the subsequent increase in frequency with age of Generalised anxiety disorder, social phobia, and panic disorder.

Generalised Anxiety Disorder (GAD) (labelled as overanxious disorder prior to the publication of DSM-IV) is characterised by excessive and uncontrollable worry in a number of different areas (e.g. schoolwork and family life), occurring more days than not for at least six months (Wells & Butler, 1997). GAD is associated with at least one symptom of psychological disturbance or somatic complaints such as sleep disturbance, stomach aches, nausea, headaches, irritability, and muscle tension. GAD has been described as the basic, or 'core' anxiety disorder (e.g. Barlow, 1988; Rapee, 1991). Although it is not clear exactly what this means, it may be true in the sense that the disorder reflects, in a relatively pure form, basic cognitive processes involved in vulnerability to anxiety states, such as self-referent negative rumination, dysfunctional self-knowledge, and particular styles of processing (Wells & Mathews, 1994; Schniering, et al., 2000). In studies conducted by Bowen et al. (1990) and Fergusson, Horwood, and Lynsky (1993) prevalence rates for GAD vary between 2.4 and 4.2 %, while a recent study with adolescents aged 12-17 years found rates well below 1% (Essau, Condradt, & Petermann, 2000)

The essential feature of Specific Phobia is the specific isolated, persistent fear of a circumscribed stimulus, not specifically fear of separation (as in SAD), fear of humiliation or embarrassment in social settings (as in social phobia) or fear of having a panic attack (as in panic disorder). Most common in children, is phobias of animals or insects, the dark, heights, thunderstorms, needles and other medical and dental procedures (Bell-Dolan, Last, Strauss, 1990; Gray, 1987; Last, Francis, & Strauss, 1989; Schniering et al., 2000). The diagnosis is made only if the associated avoidant behaviour interferes with the normal functioning of the child. Because of their cognitive level of

development, children in contrast to adults may not recognise the irrational nature of their phobias in order for a diagnosis to be made. Prevalence rates vary from 2.4% in children (Anderson et al., 1987) and 5.1% in adolescents (Fergusson et al., 1993), while a recent study suggests that prevalence rates may be as high as 9.2% for adolescents according to parent reports (Verhulst et al., 1997).

The essential feature of Social Phobia (previously referred to as avoidant disorder prior to the DSM-IV) is a marked and persistent fear of social and performance situations where the individual is exposed to possible scrutiny or negative evaluation by others (Clark, 1997). Typically, the individual fears that they will act in a way that will be humiliating or embarrassing during social interactions such as talking in front of a group of people, being the centre of attention, or meeting new people. The feared situations are avoided whenever possible and otherwise endured with considerable discomfort. For some individuals only a small number of specific performance situations are feared, while for others a wide range of public performance and social interaction situations are feared. Prevalence rates are much higher in adolescent samples (6.3%) than child samples (less than 1%) (Anderson et al., 1987; Verhulst, et al., 1997), although as suggested by Schniering et al (2000), this may be due to changes in criteria from the DSM-III-R to DSM-IV where social phobia was previously referred to as avoidant disorder.

Obsessive-compulsive disorder (OCD) is characterised by the presence of obsessions or compulsions. Obsessions are repetitive, persistent thoughts, images or impulses that are experienced as intrusive and distressing often relating to germs, contamination, harm and or danger (Schniering et al., 2000). Compulsions are purposeful behaviours or rituals (e.g. washing checking, touching, ordering) aimed at reducing the

likelihood of a negative event. Unlike adults, children do not necessarily recognise that the fear is excessive or unreasonable. Recent epidemiological studies suggest that OCD is 2 to 20 times more common than previously thought with approximately 0.2 –4% of children and adolescents affected (Douglass, Moffitt, Dar, McGee et al., 1995; Essau et al., 2000).

In panic disorder, the essential feature is discrete panic attacks. DSM-IV (APA, 1994) defines panic attack as a sudden onset period of intense fear or discomfort associated with at least four symptoms that include: breathlessness, palpitations, dizziness, trembling, a feeling of choking, nausea, de-realisation, chest pain, and paraesthesia. There has been a great deal of controversy in the literature debating whether or not panic disorder occurs in children and adolescents. It has been suggested that adult symptoms (such as fear of losing control, going crazy or fear of death during panic) does not occur in childhood or adolescence due to their limited cognitive development (Chorpita, Albano & Barlow, 1996). In line with this suggestion, prevalence studies, such as the study conducted by Anderson et al. (1987), found no reports of panic disorder in 792 eleven-year olds. Studies with adolescents found similarly low prevalence rates of between 0.3 – 0.9% (Verhulst et al., 1997; Essau et al., 2000). However, in a recent study Mattis and Ollendick (2002) investigated the prevalence of non-clinical panic attacks in 576 older adolescents (18-19 years). Non-clinical panic attacks were defined as panic occurring in individuals not seeking treatment. This study demonstrated that the occurrence of non-clinical panic attacks is a fairly common phenomenon in late adolescence, with 12.2% reported recent episodes of panic attack and an additional 16.5% reporting at least one past panic attack, but not in

the past month. This study was unique in the age range selected, given that previous studies of adolescence have all incorporated a fairly broad age range (typically age 12 or 13 through to 17 or 18 years of age), while studies of college students have incorporated both older adolescents and adults within the same samples. Clearly, the period of late adolescence warrants further investigation especially given the DSM-IV suggestion that late adolescence may be the initial peak for onset of panic disorder.

Finally, posttraumatic stress disorder (PTSD) is a disorder that has been more extensively studied in adults than in children. PTSD is precipitated by a threatening traumatic event that is characterised by persistent experiencing of the trauma (Schniering et al., 2000). In children, this may be evident through repetitive play and nightmares. Other problems associated with PTSD include distress on exposure to cues related to the trauma, general somatic complaints, and disorganised agitated behaviours and emotional withdrawal. In a study conducted by March, Amaya-Jackson, Terry and Costanzo, (1997) 1,019 children in grades 4-9 from a community exposed to a severe industrial fire, 11.9% of children met the diagnostic criteria for PTSD. Rates as high as 43.9% were reported in studies of sexually abused children and adolescents using structured diagnostic interviews (McLeer, Deblinger, Hengry & Orvaschel, 1992). In a recent study conducted by Wittchen, Nelson, and Lachner (1998) with a community sample of 14-24 year olds, the lifetime prevalence of PTSD was 1.3%. Following this review of the classification types of anxiety disorders, this chapter now continues with overall prevalence rates of anxiety disorders in childhood and adolescence compared with other DSM-IV disorders.

Prevalence

There have been a number of methodologically sound epidemiological surveys conducted into the prevalence of mental disorders that has given us insight into the prevalence of anxiety disorders during childhood and adolescence (e.g. Anderson et al., 1987; Bird et al., 1988; Cohen et al., 1993; Costello et al., 1996; Fergusson, Howood & Lynskey, 1993; McGee et al., 1990; Eloez, Johnson & Cohen, 1989; Verhulst et al., 1997; Whitaker et al., 1990). In the majority of these prevalence studies, the anxiety disorders were found to be the most prevalent among all other disorders. While these studies are largely comparable, there were important differences across the studies with respect to assessment methods, and rules used to make decisions for DSM diagnoses. A major problem with the DSM system is the frequent changes of diagnostic categories from one edition to the other (Verhulst, 2001). Studies also differed with respect to the age of the children, and region where they lived. Other methodological differences included the use of child versus parental reports of symptoms. Depending on the definitions of disorders and assessment methodologies used, about 6-10% of children in the general population were found to suffer from some kind of anxiety disorder. Also, as in the studies of rates of self-reported fears (e.g. Ollendick et al., 1985; Ferrari, 1986; Draper & James, 1985; Gullone & King, 1997), there was a tendency for girls to report a higher prevalence of anxiety than boys.

In a review of epidemiological studies conducted specifically into childhood anxiety conducted in North America over the last decade, Costello and Angold (1995) have reported that the presence of anxiety disorders in children and adolescent ranged from 5.7-17.7%, with half of the studies estimating prevalence above 10%. To enhance

comparability with future studies Verhulst, Van der Ende, Ferdinand and Kasius (1997) used internationally available assessment procedures and scoring rules that are standardised and easily replicable (for a detailed review see Verhulst 1995; Verhulst et al., 1997). They found that 10.5% of children in their Dutch prevalence study suffered from some kind of anxiety disorder based on the child diagnostic interviews. Findings conducted in Australia report similarly high prevalence rates. For example, Dadds, Spence, Holland, Barrett, and Laurens (1997) assessed a community sample of 1786 children aged 7-14 years. They found that approximately 1 in 6 (16%) children were suffering from anxiety severe enough to interfere with their daily functioning as diagnosed using a structured clinical interview, with girls over-represented in the diagnostic categories of generalised anxiety disorder (GAD) and separation anxiety disorder (SAD). An additional study conducted in Australia with high school students, found that between 10-20% of adolescents reported high anxiety symptoms (Boyd, Kostanski, Gullone, Ollednick & Shek, 2000). Similarly, Essau, Conradt and Petermann (2000) reported comparable results with a sample of German adolescents. Their results revealed that 18.6% of all adolescents interviewed using DSM-IV criteria reported having at least one type of anxiety disorder sometime in their lives, with girls showing significantly higher rates of anxiety disorders than their male counterparts.

In summary, the most salient conclusions that can be drawn from the prevalence studies reviewed above, despite the great variation in methodology, appear to be that anxiety disorders are the most prevalent disorders reported during childhood and adolescence. Among the community samples, reported prevalence rates for anxiety disorders range from 6% to 20%, with a number of studies indicating that girls tend to

report more anxiety disorders than boys. Moreover, these prevalence rates appear to be comparable across cultures. Taken together, these findings highlight the importance of both research and clinical attention to this domain of psychopathology.

Stability Over Time

As has been established in the previous section of this chapter, anxiety disorders are the most common class of psychiatric disorders among children and adolescents. Although certain fears and anxieties may be both normative and transient in particular developmental periods, the levels experienced by some youngsters exceed developmental expectations and significantly undermine functioning at home, school, and with peers. Despite the documented psychological distress and impairment caused by anxiety disorders, our knowledge of their course and outcome is limited primarily to retrospective data. Retrospective studies of anxiety disordered adults report rates of between 50-70% of adults reporting that they initially had an anxiety disorder as a child (Keller, Lavori, Wunder, Beardslee, & Schwartz, 1992; Pollack, Otto, Sabatino, & Majcher, 1996). While prospective studies are considered to be the preferred method of assessing course and outcome of anxiety, since they are less afflicted by biases such as recall and memory lapses, prospective studies are highly expensive and time consuming to conduct. The following section aims to review epidemiological and clinical studies (both referred and non referred, treated and not treated) conducted to date.

In a study by Reynolds (1981) using the Revised Children's Manifest Anxiety Scale, a nine-month follow-up study of anxiety in a sample of 534 children in grades 4-6 was conducted. Reynolds found quite substantial correlations between children self-reporting anxiety at time one and time two ($r = .68$). However, to conclude that anxiety is

stable over time, continuity needs to be demonstrated over a significantly longer period of time than demonstrated in the Reynolds study.

In the Dunedin Multidisciplinary Health and Development study conducted in New Zealand (Anderson et al., 1987; McGee et al., 1992; Williams et al., 1990), a birth cohort of 943 children have been reassessed every few years since the age of three. Young people diagnosed with an anxiety disorder at the age of 21 were significantly more likely to have had an anxiety disorder earlier in their life (61.5%), than a different disorder (18.9%) or no disorder (19.5%). Similarly, Verhulst and Van der Ende (1992) conducted a study with an epidemiologic sample of Dutch children ($N = 936$) aged 4–11 years of age and followed them up again six years later. Notably, children who scored within the clinical range (as rated by their parents) on internalising symptoms at time one, were 10 times more likely to receive scores in the clinical range at time two than children whose scores were in the normal range when they were initially assessed.

In a recent study conducted by Gullone, King and Ollendick (2001) a sample of 362 children and adolescents aged between 7 and 18 years were recruited as a means to track the developmental patterns of normal anxiety. At three-year follow-up, the sample consisted of 68 children and adolescents and results indicated that, on the whole, results on self-reported anxiety measures decreased over time. This was true for overall anxiety and its subtypes, with the exception of social concerns/ concentration, which did not decrease over time. In addition to the changes found over time, the data indicated continuity in anxiety such that levels of anxiety at time one were significant predictors of follow-up anxiety, although only a small amount of variance was shared. These findings advance our knowledge regarding the developmental patterns of anxiety in a normal non-

clinical population. Moreover, these results are consistent with other findings that normal fears and anxiety tend to decrease in intensity and frequency over time (e.g. Gullone & King, 1997; Ferrari, 1986; Draper & James, 1985). However, a number of limitations of the study must be considered. Firstly, the limited sample size obviously reduced the statistical power levels for certain analyses. Thus, the findings undoubtedly require replication with a larger sample. Secondly, the results of the study are based on a single measure of anxiety, namely the self-reported RCMAS. Hence, future research should investigate whether similar results can be replicated with other validated measures.

More recently, Essau, Conradt and Petermann (2002) sought to examine the course and outcome of anxiety disorders in a community sample of 12–17 year old German adolescents using diagnostic definitions and DSM-IV criteria. Of the 1035 students who interviewed at time one, 523 adolescents formed the database for time two interviews approximately 15 months later. Results revealed that only 14% of adolescents who met the criteria for an anxiety disorder at time one had a current anxiety disorder at time two, while 77.4% of adolescents no longer met the criteria for an anxiety disorder. However, for those adolescents with comorbid conditions the findings were less positive. That is, they were more likely to retain their anxiety diagnosis (68.4%), depressive disorder (75%) and somatoform disorder at follow up, than those who were diagnosed with anxiety only. Overall these results appear to suggest that in general, anxiety disorders have a more remitting clinical course than those found in previous studies, but less favourable if comorbid conditions are present. However, the follow-up period employed by this study was limited to only 15-months, compared to the lengthier follow-up periods employed by other studies (Anderson et al., 1987; McGee et al., 1992; Williams et al.,

1990) thus firm conclusions regarding the stability of anxiety over time in this sample should be regarded as tentative.

Studies using clinical samples provide further evidence of a continuity of problems from childhood to adulthood. In a study of a community sample of non-referred adolescents ($N = 16$) with obsessive-compulsive disorder (OCD), Berg et al. (1989) followed the cohort for a period of two years using diagnostic interviews. At 2-year follow-up 31% of the children still met the DSM-III-R criteria for the disorder. Moreover, 56% received additional psychiatric diagnoses at that time (mostly other anxiety disorders and affective disorders). By contrast, only 3 (14.4%) of 21 children with no diagnosis at time one (intake) received diagnoses for psychiatric disorders at follow-up. Less favourable results were found in a study by Leonard et al. (1993). Fifty-four children diagnosed with OCD were followed for 2 to 7 years after their participation in a clomipramine treatment study. Although the majority were still receiving pharmacological treatment at follow-up, 43% continued to meet criteria for OCD. Furthermore, almost all (96%) of the participants received additional diagnoses at this time.

Cantwell and Baker (1987) followed a group of clinically anxious children for three years, of which 10-15% had received treatment. Results revealed that 71% of children initially diagnosed with avoidant disorder no longer met criteria for the disorder after the 3-year period. The percentages of children no longer meeting criteria for separation anxiety and overanxious disorder were 89% and 75%, respectively. However, almost a third of the children initially diagnosed with an anxiety disorder received a different anxiety diagnosis at the 3-year follow-up and a quarter received a new

‘externalising’ diagnosis. These results suggest that anxiety disorders in children are much more fluid than was once thought. However, certain methodological limitations limit the conclusions that can be drawn. Firstly, the follow-up interviewers were aware of the participants’ initial diagnoses, which may have biased the results obtained. Moreover, no comparison group was used which comprised of children who have never been psychologically “ill”. Such groups are needed to control for the effects of psychopathology per se and to obtain community base rates of different disorders.

In an attempt to overcome some of these identified limitations, Last, Perrin, Hersen and Kazdin (1996) prospectively and blindly reassessed children aged 5-18 years over a 3-4 year period using three groups. Group one consisted of clinically referred anxious children ($N = 102$), group two was a psychopathological group (attention-deficit disorder, $N = 58$) group three consisted of a never psychiatrically ill control group ($N = 87$). In contrast with previous findings they found that treated and untreated children exhibited comparable recovery rates. That is, 82.6% ($N = 23$) of those children who went untreated had recovered from their primary anxiety disorder, compared with 80.3% ($N = 61$) of those who had received treatment. However, during follow-up anxious children were more likely to develop new psychiatric disorders (30%), primarily new anxiety disorders (16%), than were children who were never psychiatrically ill at time one.

These results however, must be interpreted within the context of certain study limitations. Firstly, the analyses of course and outcome for individual anxiety disorders were hampered by the small number of children in the specific groups at follow-up. Secondly, there were significant sociodemographic differences between participants who returned for follow-up and those who did not. Thirdly, symptom status and adjustment

were not assessed in the study. Thus it is possible that some children were still experiencing significant symptoms of anxiety at follow up, although they were free of their initial anxiety disorders. While the absence of a diagnosable disorder is evidence of a favourable outcome from a clinical perspective, future studies should explore the course of symptoms in this population and their relationship to adjustment and risk for relapse over time. Clearly, further research is needed to clarify this issue.

In summary, while normal anxiety appears to decrease over time, the majority of the studies reviewed suggest a moderate level of continuity of anxiety disorders (i.e., higher than what might be expected by chance alone). It appears that anxiety disorders in young people are not a temporary problem, but tend to persist into adulthood if left untreated. Moreover, a number of studies suggest that these anxious children may be at increased risk for additional psychiatric disorders over time. This stability of symptoms highlights the importance of developing strategies to prevent and intervene as a means to reduce a great deal of suffering for both children, and parents afflicted by anxiety disorders. However, contradictory findings have also been found (Last et al., 1996; Essau, Conradt, & Petermann, 2002) indicating the need for further research. Furthermore, certain methodological limitations identified in each of the above studies, in addition to the relative paucity of research in the area, limit the conclusions that can be drawn.

Age of Onset

A limited number of studies have been conducted which provide information concerning age of onset for various childhood anxiety disorders. Of the studies conducted, separation anxiety disorder, avoidant disorders/social phobia and simple

phobia seem to have the earliest age of onset. For example, the Epidemiological Catchment Area Program study of DSM-III disorders found the median onset age was 10 for phobias (Bourden et al., 1988). However, because these adult studies were based on retrospective reports of adults aged 18 to 90, they may not reflect onset ages for contemporary adolescents. Moreover, the accuracy of self reported age of onset is generally poorer among older adults (Lewinsohn et al., 1986) possibly resulting in overestimation of the ages at which disorders were first experienced.

A study by Giaconia et al. (1994) was one of the first studies to systematically examine the ages of onset of selected DSM-III-R disorders in a community population. Participants were 368 children who participated in an ongoing 14-year longitudinal study. Results revealed that simple phobia had the earliest onset of all disorders. The primary risk period for developing simple phobia peaked at ages 2 through 5, with a secondary peak at ages 10 through 11. All participants with a lifetime diagnosis experienced onset before age 14. Social phobia emerged later than simple phobia but still substantially earlier than all other disorders such as depression and substance abuse. Hazard rates for social phobia peaked in the early teens (ages 12 to 13) and well over three quarters (83%) of participants with lifetime social phobia reported onset before age 14. Despite the study's strength as one of the first to investigate age of onset, a few limitations should be noted. Firstly, the majority of participants (99%) were from a predominately white working class community, hence these results may not generalise to youth of other socio-economic or ethnic backgrounds. Second, age of onset was based on retrospective reports at age 18 and thus may be subject to errors in recall, although the reliability of self-reported age of onset is generally better for younger participants than adults (Farrer

et al., 1989). Notwithstanding these limitations, the case for early identification, and prevention is highlighted by the current study.

Among clinic referred children, as well as children at risk, anxiety disorders have likewise been found to start earlier than major depressive disorders, reconfirming data from population-based investigations. In one sample of young patients, mean ages at onset for separation disorder, simple phobia, and overanxious disorder of childhood were 7.5 years, 8.4 years and 8.8 years respectively (Last et al., 1992). Similarly in a longitudinal study of clinic-referred depressed children, when comorbid anxiety disorders were present, their onset typically preceded the onset of major depression (Kovacs et al., 1989). In a study of young offspring at risk for psychopathology, the early age at onset of anxiety disorder (mean age of 10 years) was also confirmed.

In a study conducted by Dadds et al. (1997) with a community cohort of 1786 children aged 7 and 14 years of age, children who were rated as “at risk” based on self report measures, teacher nominations, and diagnostic interviews, were offered participation in the study and randomly assigned to either an intervention or monitoring group. Their results revealed that just over half (54%) of the children in the monitoring group progressed into a formal anxiety disorder at 6-month follow-up. These results further support the previous findings reviewed above, and highlight the importance of late childhood and early adolescence as a critical time in the development of anxiety disorders. Studies have also demonstrated the effectiveness of treatment for this age group (Barrett, Dadds, & Rapee 1996; Barrett, 1998; Cobham, Dadds, & Spence, 1998; Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; Last et al., 1998; Shortt, Barrett, Dadds, & Fox, 2001; Silverman et al., 1999).

Hence research and clinicians may be well advised to focus on late childhood targeting resources and preventive interventions to this age group most at risk. This age group is the target for the preventive intervention described in chapter five.

Psychosocial Implications

There is a plethora of evidence to suggest that anxiety disorder marks a pathway to serious and chronic disability. That is, research into the debilitating effects of anxiety in terms of disruption to family and/or peer relationship and academic functioning has been well documented. In regards to academic functioning, Ialongo and colleagues (1994; 1995) in a study of 1,197 first grade children, found that anxiety was significantly associated with lower achievement. That is, children with high levels of anxiety were 7.7. and 2.4. times more likely to be in the lowest quartile of reading and maths achievement respectively.

In regards to family functioning, Stark et al. (1990) examined samples of, anxious, depressed, anxious plus depressed, and non-psychiatric controls based on portions of a structured interview. Compared with controls, anxious children described their families as more disturbed (i.e. less cohesive, more conflictual and enmeshed). However, ratings from mothers on family functioning did not discriminate groups. Whether this was due to social desirability constraints or a number of limitations inherent in the study remains to be demonstrated. Such limitations include, the absence of father or paternal family environment ratings and no indices of parental psychopathology. Last and Strauss (1990) assessed dependency and overprotection in 63 anxiety-based school refusers diagnosed with a structured interview. School –refusing children with an anxiety disorder were more dependent and mothers more overprotective than matched non-

psychiatric controls. Again, the results of this investigation are limited by the absence of paternal reports and an assessment of parental psychopathology. Furthermore, the causal direction of the relationship between anxiety and parenting factors is unclear. That is, whether dependence and mother over control are a result of the child's anxiety or precursors in the development of the anxiety disorder was not investigated. Empirical evidence examining the role of parenting behaviours in the development of childhood anxiety will be discussed in more detail in chapter two of this thesis.

In 1990, Kashani and Orvaschel examined overall adjustment and functioning in a community sample of 210 children and adolescents. They found that at age 12, anxious children had more problems compared to their non-anxious counterparts at school, and also held more negative self images. Anxious 17 year olds were found to have significantly more difficulties in school, more somatic complaints and held more negative self-images than non-anxious controls. Similar results were found in a study conducted by Messer and Beidel (1994). Using a community sample of children from grades 3 – 6 they classified children into three groups on the basis of diagnostic interviews (ADIS-C: Anxiety Disorders Interview Schedule for Children: Silverman & Nelles, 1988). The three groups included: (1) test anxious only; (2) childhood anxiety disordered and (3) non-clinic controls. Their results revealed that children diagnosed with an anxiety disorder demonstrated greater impairment on both the physical and cognitive measures of self-competence, temperamental flexibility, and levels of self-esteem than non-clinic controls. This was closely followed by the test anxious child group, who showed intermediary levels disturbance.

In addition to these problems, anxiety in children is also associated with difficulties in peer relationships. For example, in a study conducted by Edelbrock (1985) with children aged 6 to 16 years who had been referred to an outpatient clinic, children who were rated by teachers as ‘anxious’ were also identified as disliked and teased by peers, to prefer to play with younger playmates and to have generally poor relationship compared to children not rated as anxious. A study by Strauss, Lahey, Frick, Frame and Hynd (1988) reported similar findings. In their study they compared children aged 6 to 13 years who were anxious, or conduct disordered, with non clinic control children and found that anxiety disordered children were significantly less liked than non-clinic children and received the lowest social impact scores. Moreover, anxious children were also more likely to fall in the socially neglected category in terms of overall peer status.

Studies investigating overall psychosocial impairment related to anxiety disorders has also been investigated. In a study conducted by Wittchen, Nelson and Lachner (1998) with adolescents diagnosed with simple phobia, generalised anxiety disorder, and panic disorder, adolescents reported severe disturbance in psychosocial functioning during the worst episode of their anxiety disorder. Essau et al., (2000) replicated these finding with a cohort of anxious German adolescents. These adolescents similarly reported significant disruption and impairment to their daily functioning and psychosocial adjustment during the worst period of their disorder.

From the evidence reviewed above, research indicates that anxiety in children and adolescents is associated with significant psychosocial impairment. While the casual direction of the relationship between anxiety and its psychosocial correlates is unclear, it makes sense to hypothesise that for many anxious children, this relationship is one in

which anxiety continually strengthens the psychosocial factors and vice versa, thus contributing to the chronicity of anxiety in those children who have not received treatment.

Comorbidity

Comorbidity has been defined as the occurrence of two or more disorders in the same individual at the same point in time, at a rate that is greater than would be expected by chance (Kashani, Dandoy, & Orvaschel, 1991). Research from both clinical and community studies, suggest that anxiety disorders have high rates of comorbidity, although the published data are variable. Some of the variability in findings reflects differences in the samples' ages, study methods and reporting practices. For example, studies of anxious children have reported the prevalence of comorbid major depressive disorder specifically, or the rate of any comorbid affective disorder (e.g. Strauss & Last, 1993). Similarly, some studies referred to lifetime anxiety disorder, lumping all anxiety disorders together and thus preventing evaluations of the comorbid rates between separate anxiety disorders. Regardless of these differences, a number of trends have emerged from the published studies. Specifically, in clinical populations, the most common comorbidity is another anxiety disorder (Kendall & Brady, 1995), followed closely with depression during the period of adolescence (Francis et al., 1992; Last, Hersen, et al., 1987; Strauss & Last, 1993). In community populations, the most common pattern of comorbidity is that of anxiety and depression (Essau et al., 2000; Lewinsohn et al., 1993). The following section details findings of comorbidity rates from both epidemiological studies and clinical samples.

The results from the Oregon Adolescent Depression Project (Lewinsohn et al., 1993; Orvaschel, Lewinsohn & Seeley, 1995) indicate that comorbidity is extremely common in community samples. A sample 1710 adolescents were randomly selected from various high schools generally representative of 14 -18 year old students in the western part of the state of Oregon, U.S.A. Respondents were evaluated twice, approximately 1-year apart by clinicians using standardized psychiatric interviews and DSM-III-R (APA, 1987). Notably, primary anxiety disorder was associated with rates of comorbidity of 48.7% for major depression and 13.3 % for disruptive behaviour disorder. Rates of comorbidity with other anxiety disorders were not reported in this study and thus the rates of co-occurrence of anxiety disorders in this sample remain unknown.

The results from the Dunedin Multidisciplinary Health and Development Study, a New Zealand birth cohort study of 943 participants described earlier, found that at age 15, 101 children were assessed as having an anxiety disorder. Of these children, 13% had a comorbid depressive disorder and 10% had a comorbid externalising disorder (McGee et al., 1990). At age 18, 183 cases had an anxiety disorder, 46% had comorbid mood disorder and 23% had a substance use disorder (Newman et al., 1996). Reassessment of participants at age 21 showed that 44% of those with an anxiety disorder had a comorbid mood (mostly major depressive) disorder ($N = 195$) and 23% had a substance use disorder (Newman et al., 1996). Additional analyses of this data conducted by a research team focusing on OCD (Douglass, Moffitt, Dar, McGee, & Silva, 1995) found that of those participants at age 18 who met the criteria for OCD ($N = 37$), 84% had comorbid disorders: major depression (62%), social phobia (38%), alcohol dependence (24%), and Dysthymia (22%). Among adolescents with OCD ($N = 20$) identified in a school-based

population, 75% had lifetime comorbidity; the most frequent co-occurring conditions were some other anxiety disorder (45%), major depression (25%) and eating disorder (25%) (Flament et al., 1988). More recently, Lewinsohn, Zinbarg, Seeley, Lewinsohn and Sack (1997) specifically examined the co-occurrence of anxiety disorders with other anxiety disorders. They identified 134 adolescents from a community sample of 1,507 that had met criteria for an anxiety disorder at some time in their life. Eighty-one percent (81.3%) of this group met criteria for only one disorder while 15.7% had two anxiety diagnoses and 3 % had three anxiety diagnoses. Interestingly, these rates of anxiety comorbidity (18.7%) are somewhat lower than other studies and much lower in comparison to results of clinic samples as indicated below.

In clinical populations, the most common comorbid disorder with an anxiety disorder is another anxiety disorder. For example, Last et al (1987) found that the majority of children receiving treatment at an anxiety disorders clinic had more than one anxiety disorder. Forty two percent of children with separation anxiety disorder had an additional anxiety diagnosis, while 55% of children with overanxious disorder and 65% of children with social phobia met the criteria for another anxiety disorder. Thirty-three percent of the children with a primary diagnosis of social phobia met criteria for overanxious disorder, while over a third of children with primary diagnosis of overanxious disorder also met criteria for social phobia. A notable limitation of this study was the sample size, which was small for both disorders ($N = 11$). Using a larger sample, Strauss and Last (1993) examined 29 children with social phobia and 38 with simple phobia. Of the children with social phobia, two thirds had an additional anxiety diagnosis, most commonly overanxious disorder, and half of the simple phobic group had

an additional anxiety diagnosis, most commonly separation anxiety disorder. In a study conducted by Kendall and Brady (1995), they examined a sample of 106 clinic-referred children aged 9 to 16 years of age with an anxiety diagnosis. They found that OAD was the most common diagnosis present as a primary or comorbid diagnosis in 97 children out of the total of 106. Furthermore, 80% of children with primary avoidant disorder (AD) or SAD had comorbid OAD. For children diagnosed with primary OAD, 45% had comorbid AD and 20 % had SAD. Alessi and Magen (1988) reported similarly high rates of anxiety comorbidity, finding comorbid separation anxiety disorder in six out of seven panic disordered children identified from a psychiatric sample.

Following anxiety, the second most common comorbidity in clinically referred anxiety disordered children is depression. Orvaschel, Lewinsohn and Seeley (1995) noted that nearly two thirds (64.5%) of adolescents with a primary diagnosis of anxiety disorder later developed a second diagnosis of major depressive disorder. In a group of 10-18 year old patients referred for severe obsessive-compulsive disorder (N=27), 22% had a major depressive disorder (Flament et al., 1990). In another sample of 46 children aged 6-18 years with severe OCD, lifetime comorbidity included other anxiety disorders (48%), and major depression (26%) (Lenane et al., 1990). Similar findings were found by Kendall, Kortlander, Brady and Chanksy (1992) where 20% of anxiety disordered youth were found to have comorbid depression. Moreover, these findings are consistent with studies conducted with community samples, which find that the most common trend of comorbidity is between anxiety and depression (Essau et al., 2000).

Thus the existence of a strong relationship between anxiety and depression has been widely demonstrated (Cole, Peek, Martin, Truglio and Seroczynski, 1998; Katon &

Roy-Byrne, 1991). This had led a number of researchers to suggest that anxiety and depression share a common underlying diathesis (Clark, 1989), or as sharing overlapping symptomatology, which makes them difficult to distinguish (Katon & Roy-Byrne, 1991; Gurley et al., 1997). Others argue that depression develops secondary to anxiety as a result of the increasing feelings of frustration and failure spurred on by the unsuccessful attempts to cope with, or manage, their anxiety disorder (Cole et al., 1998; Axelson & Birmaher, 2001; Verhulst, 2001). In line with this, many researchers contend that internalising disorders may exist on a developmental continuum. Research reviewed earlier in this chapter provide further support for this contention where anxiety disorders were found to emerge substantially earlier than depression and other psychiatric conditions in both clinic and community samples (Giaconia et al., 1994; Last et al., 1992; Kovacs et al., 1989, Essau et al., 2000).

Furthermore, in a study conducted by Brady and Kendall (1992) children with comorbid anxiety and depression tended to be older than their anxious only or depressed only counterparts. Further support for this theory comes from a study conducted by Cole et al. (1998) who found that high levels of anxiety at one point in time predicted high levels of depressive symptoms at subsequent points in time, even after controlling for prior levels of depression. Similarly, a study conducted by Breslau et al (1995) found that a history of anxiety disorder substantially increased the risk for developing major depressive disorder during adolescence and young adulthood in a community sample. Obviously the taxonomy of the relationship between anxiety and depression is still a major focus of current research, and further longitudinal research is needed before definitive conclusions can be drawn. However, if anxiety in childhood is the first

expression of psychopathology, it is crucial to identify anxious children and intervene early in an attempt to prevent future depression or long-term chronic anxiety disorders.

Chapter Summary

Anxiety disorders are the most common class of psychiatric disorders among children and adolescents (Berstein & Borchardt, 1991). Although certain fears and anxieties may be both normative and transient in particular developmental periods, the levels experienced by some youngsters exceed developmental expectations and significantly undermine functioning at home, school, and with peers. The above review of anxiety disorders in children clearly shows that these disorders start early in life. In Giaconia et al.'s (1994) study on the initial onset age of psychiatric disorders, they found that specific phobia had the earliest onset of all disorders and also emerged earlier than other anxiety disorders. Clearly, the case for early identification and prevention is highlighted as critical for this period of childhood. Research on the psychosocial implications of anxiety indicates the disabling consequences, effecting schooling and academic functioning, peer relationships, self-esteem and family functioning. The continuity of anxiety disorders also appears long-term, continuing into adulthood if left untreated. Anxiety disorders are however rather malleable. That is, it is not uncommon that an anxiety disorder at a particular age has been 'substituted' for another anxiety disorder some years later (Ost & Treffers, 2001).

Once clinical episodes of disorders such as anxiety occur, individuals are at high risk for a recurrent, chronic course. Ultimately preventing first onset should be an essential priority for the mental health field. Moreover, the presence of an anxiety disorder in childhood also leads to a greater risk of other adjustment and psychological

problems in adulthood, in particular depressive disorders. While the relationship between anxiety and depression is still a focus of current research, the need for early identification of children with anxiety difficulties is further highlighted as a means to prevent the development of subsequent problems. The prevention study described later in chapter 5, consequently focused on middle childhood as the optimum time to prevent a great deal of suffering for children and their families. Clearly, there is an urgent need to develop ways to best intervene to reduce, remediate and prevent the cognitive, behavioural and emotional difficulties associated with anxiety. Chapter two will now proceed to review major etiological models implicated in the development and maintenance of anxiety disorders. This serves to provide a context for the empirical PhD studies conducted, which are detailed in chapters four to six of the current thesis.

CHAPTER TWO

Prevention Prerequisites Part I:

Risk and Protective Factors Associated with the Development of Childhood Anxiety Disorders.

The previous chapter demonstrates the growing body of literature on the phenomenology, prevalence, and psychosocial implications of childhood anxiety disorders. This progress in our understanding has been facilitated by research conducted with both child and youth populations. The current chapter aims to outline the necessity of prevention programs, and review one of the two fundamental prerequisites identified by a number of researchers (e.g., Holden & Black, 1999; Reiss & Price, 1996; Spence, 1994; Spence, 1996a) underlying prevention practices. Specifically, to review the solid knowledge base that exists concerning factors, which cause anxiety disorders (i.e. risk or aetiological factors). Chapter three will then continue by reviewing the second prevention prerequisite. That is, the presentation of findings relating to current treatment and prevention strategies that have empirically been shown to modify these risk factors. Together these chapters will assist in establishing a context for the universal child anxiety prevention project outlined in chapter 5, which aims to add to the empirical literature by conducting the first effectiveness trial of anxiety prevention under real world conditions.

Why Prevention?

As established in the previous chapter, once clinical episodes of disorders such as anxiety occur, individuals are at high risk for a recurrent, chronic course. Ultimately preventing first onset should be an essential priority for the mental health field (Donovan & Spence, 2000, Greenberg, Domitrovich, & Bumbarger, 1999; Munoz, 2001). The

prevention message is certainly not new to psychology, having episodically surfaced in the popular and professional literature over the last several decades. However with some notable exceptions, the response to the development of prevention interventions, especially in regard to childhood anxiety, has been largely neglected (Spence, 1994).

It is now widely accepted that anxiety disorders are the most common form of psychological distress self-reported throughout this period of the lifespan (Berstein & Borchardt, 1991; Costello & Angold, 1995; Ollendick & King, 1998; Verhulst et al., 1997). Beyond the high prevalence rates, anxiety disorders are associated with a wide range of psychosocial impairments (Essau, et al., 2000; Kashani & Orvaschel, 1990; Last, Hanson & Franco, 1997; Mattison, 1992; Messer & Beidel, 1994; Wittchen et al., 1998) and appear to signal significant risk for other disorders, particularly other anxiety disorders and depression (e.g., Cole et al., 1998; Lenane et al., 1990; Orvaschel, et al., 1995). Furthermore, sufferers of anxiety have also been found to leave school early, marry early, underachieve, and be less active in the workforce compared to their non-anxious peers (Mental Health Working Group on Prevention Research, 1995). In addition to the personal suffering experienced by children and their families, anxiety disorders also have a tremendous cost to society. According to a study sponsored by the Anxiety Disorders Association of America, anxiety disorders cost the nation more than \$42 billion dollars a year (Greenburg et al., 1999b). Australia is likely to evidence a similar pattern of expense, with more than half of this cost associated with the repeated visits to health care services, with sufferers attempting to seek relief from anxiety symptoms that frequently mimic physical illnesses.

Moreover, as Tuma (1989), Day and Roberts (1991) and Zubrick et al. (1997) highlighted, of those in need of mental health services, less than 20% receive appropriate care. Children in need are not being reached, waiting lists are long, and no show rates and family dropouts often exit 50% (Weist, 1999). These data probably reflect a concern that is worldwide. Hence prevention has been identified as the most important direction in which these services should move. The prevention of anxiety seeks to target a large number of individuals over a short period of time, avoid the high level of subjective distress on the part of children and their families, and reduce the large financial costs to communities at large. Clearly, a strong case for prevention of anxiety disorders in childhood exists. This chapter now proceeds with an overview of the necessary prerequisites required to develop effective prevention programs for childhood anxiety disorders.

Prevention Prerequisites

A number of researchers (e.g., Holden & Black, 1999; Reiss & Price, 1996; Spence, 1994; Spence, 1996a) have argued that in order to develop effective prevention programs, two elements, or prerequisites, must be present. Specifically, a solid knowledge base concerning factors that cause the disorder (risk factors), and secondly effective methods that have been empirically shown in efficacy trials to modify these variables. In terms of child anxiety research, these requirements are adequately in place. That is, over the past twenty years our knowledge of factors that place children at risk of developing anxiety problems have advanced significantly. Additionally, intervention programs are available that have demonstrated their success in reducing anxiety difficulties when implemented with both individuals and groups of children with established anxiety disorders. Hence,

we are equipped with a number of child, parent, and environmental strategies for preventing childhood anxiety. This chapter will now outline findings relating to the first of these prevention prerequisites.

Risk Factors in Childhood Anxiety Disorders

Garmezy (1983) defined risk factors as those factors that, if present, increase the likelihood of a child developing an emotional or behavioural disorder in comparison with a randomly selected child from the general population. Over the past two decades, substantial gains in our knowledge of factors that place children at risk of developing anxiety problems have been made. These factors can be regarded as a complex interaction between intrinsic characteristics of the child, and environmental influences (Spence & Dadds, 1996; Vasey & Dadds, 2001). However, since an empirical investigation of all these theories is well beyond the scope of this thesis, to follow is a review of the predominant theoretical models of risk in the literature that have made important contributions to our understanding of childhood anxiety.

Biological Factors

At present there are several lines of inquiry that may shed light on possible biological bases of anxiety. These include family studies, twin studies and the construct of behavioural inhibition as a temperamental marker for the development of anxiety disorders.

Family Studies

There is a growing body of literature documenting the familial patterns in anxiety disorders. Most researchers would agree that anxiety disorders exhibit distinct clustering in families that cannot be explained by chance (Kovacs & Devlin, 1998). Over the last

two decades researchers have attempted to detangle the contributions of nature and nurture to the transmission of anxiety disorders. Studies of offspring of adults with anxiety disorders (called ‘top-down’ studies) as well as studies of the first-degree relatives of children with anxiety disorders (called ‘bottom-up’ studies) have been completed (Boer & Lindhout, 2001).

In one of the first top-down studies with 299 mothers with agoraphobia, Berg (1976) found a 7% prevalence of school phobia for children aged 7 to 15 years, and a 15% prevalence when children aged 11 to 15 were considered separately. Weissman et al. (1984) conducted a study with 194 children aged 6 to 17 years whose parents suffered from depression plus anxiety. They found that these offspring had significantly more anxiety disorders ($N = 69$, prevalence: 16%) than children of normal controls ($N = 87$, prevalence: 2 - 3%) or of parents with depression only ($N = 38$, prevalence: 0%). Turner, Beidel and Costello (1987) using a top down study, investigated familial anxiety by assessing a large group of children aged 7 to 12 years. They compared the offspring of parents with either agoraphobia or obsessive compulsive disorder to three comparison groups: 1) children of dysthymic parents, 2) children of normal parents who were recruited as volunteers for the study and 3) children of parents of a normal school group. Clinicians’ blind to parental diagnoses assessed the children. Results demonstrated that children of parents with an anxiety disorder were more than twice as likely to have a DSM-III anxiety disorder (38%) than children whose parents were in the other three groups. In a more recent study, Beidel and Turner (1997) assessed 129 children aged 7 to 12 years of parents from four different diagnostic categories (1) anxiety disorders ($N = 28$), (2) depressive disorders ($N = 24$), (3) mixed anxiety / depressive disorders ($N = 29$)

and (4) no psychiatric disorder ($N = 48$). Results revealed that children from the three parent disorder categories were significantly more likely to meet the diagnostic criteria for a disorder than offspring of normal parents. However, unlike the study conducted by Turner, Biedel and Costello (1987) no differences were found between children from these 'high-risk' groups. Nevertheless, offspring of anxious parents were significantly more likely to be diagnosed with an anxiety disorder only (i.e. 90% of those with diagnosable disorders), compared to children from the other two high risk groups who exhibited a broader range of psychopathology (only 55% were anxiety disorders).

Studies conducted using a bottom-up design demonstrate a similar pattern of occurrence. Last, Hersen, Kazdin, Orvaschel and Perrin (1991) examined 274 first-degree relatives of 94 children with an anxiety disorder. They found that the relatives of children diagnosed with anxiety had significantly higher rates of anxiety disorders than first-degree relatives of children with ADHD. In a more recent study, Martin, Cabrol, Bouvard, Lepine and Mouren-Simeoni (1999) examined the incidence of anxiety and depressive disorders in mothers and fathers in two groups of anxious school refusers; (1) school refusal related to separation anxiety and (2) phobic disorder- based school refusal. Results revealed that 78% of mothers and 50% of fathers reported a lifetime anxiety disorder and 53% of mothers and 25% of fathers reported a depressive disorder. Hence, they found a high rate of depression and anxiety diagnoses in the parents of anxious children.

In summary, both top-down and bottom up studies demonstrate that anxiety tends to run in families. However a notable limitation of familial studies of this type is that they do not indicate the relative contribution of genetic versus environmental influences

in the development of childhood anxiety. To address this, twin studies looking at the genetic contribution have been conducted. These studies serve to distinguish between genetic and environmental causes of familial clustering by the contrast of the disorder's distribution in monozygotic and dizygotic twins (Kovacs & Devlin, 1998).

Twin Studies

Recent genetic studies have provided some insight into the extent of genetic influences. Thapar and McGuffin (1997) examined 316 twin pairs aged 8 to 16 years using a short version of a parent and child rated questionnaire. When the parent ratings were evaluated, anxiety symptoms appeared to be highly heritable with additive genes accounting for 59% of the variance. But when the twins own responses were considered the shared environmental effects rather than genetic factors appeared to be of primary importance. While it may be suggested that these findings indicate a sign of unreliability, Thapar and McGuffin (1997) argue that the contradictory results could be explained by the fact that parents may be rating more enduring traits, while the twins may be rating more acute 'state' rather than 'trait' symptoms, which may be more influenced by shared environmental factors. Support for this suggestion comes from previous research with adults which has demonstrated a genetic contribution to most anxiety disorders, varying from a modest size (30% to 35% explained variance) for generalised anxiety disorder and specific phobia to a moderate size (41% to 44% explained variance) for panic disorder (Kendler et al., 1987; 1993; 1995). Interestingly, from a genetic perspective anxiety disorders appear to not be etiologically homogenous (Boer & Lindhout, 2001). Rather one genetic factor loads heavily on phobia, panic disorder (and bulimia nervosa), while another genetic factor loads heavily on generalised anxiety disorder and major depression

(Kendler et al., 1995). A study conducted by Eley and Stevenson (1999) with child twins ($N = 529$) found further support for such genetic vulnerability. Using behavioural genetic analyses they found that high levels of comorbidity between anxiety and depression were most likely due to shared genetic factors that influence both disorders. These findings suggest that there may be a genetic non-specific predisposition to developing either internalising disorder. As such, this indicates that individual and disorder-specific risk factors need to be considered in order to explain why a person develops an anxiety disorder.

Results from an adoption study conducted in the Netherlands with 758, 10-15 year old adoptees produce conflicting results with those of twin studies. Parent ratings of children's' behaviour problems were generating from the Child Behaviour Checklist (CBCL; Achenbach, 1991). Genetic influences were found to be substantial for externalising behaviours (65% of the variance explained), but unimportant for internalising disorders (explained variance almost zero). The influence of the shared environment was moderate, however the non-shared environment was found to be significant. A study by Eley et al. (1998) partially replicated these findings with adoptees aged 9 - 12 years old while investigating depressive symptoms specifically. They found a non-significant heritability influence, a modest influence of shared environment and a substantial influence of the non-shared environment. Reasons for this discrepancy between twin and adoption studies are sparse, and even Eley et al (1998) were unable to provide a clear explanation. Boer and Lindhout (2001) suggest that these findings raise uncertainty about the genetic influence and that obviously further research is urgently needed.

In summary, genetic research with adults implicates a genetic factor as a significant contribution to anxiety disorders. The findings regarding children and adolescents are somewhat inconsistent and in regards to adoption studies - conflictual. At the very least, it appears that rather than inheriting a specific gene for specific anxiety disorders, individuals appear to inherit a general vulnerability towards either anxiety or depression. Boer and Lindhout (2001) argue that one lesson to be learned from the research on adults is that the genetic contribution to anxiety disorders is probably not of a single nature. This chapter now turns to a review of the literature on another biological mechanism that has sufficient empirical support implicated in the development of anxiety disorders: Temperamental Factors.

Temperament

Among the child factors, the role of early childhood temperament has been emphasized as a factor contributing to the development of children's anxiety disorders. Research conducted by Kagan and colleagues (Kagan, Reznick, & Gibbons, 1989; Kagan & Snidman, 1991) has been influential in identifying a relatively stable temperament style, which they label *behavioural inhibition*. Behavioural inhibition can be defined as a set of characteristic features including shyness, timidity, and emotional restraint when exposed to unfamiliar people, places, or contexts (Spence & Dadds, 1996). This behavioural pattern is also associated with elevated physiological arousal. For example when encountering an unfamiliar situation, a behaviourally inhibited child is likely to experience discomfort due to intense reactivity of the sympathetic nervous system (Oosterlann, 2001). Results of top-down studies demonstrate that the rates of behavioural inhibition are significantly higher in children of adults with panic disorder and

agoraphobia or with major depressive disorder, than in children of adults who are not psychiatrically ill. For example, Rosenbaum et al (1991) found that parents of behaviourally inhibited children were more likely to have two or more anxiety disorders than controls. Similarly, Beiderman et al. (1993b) found that 85% of children whose parents were diagnosed with panic disorder with agoraphobia and 70% of children whose parents had panic disorder with agoraphobia and depression, were behaviourally inhibited. Correspondingly, bottom-up studies reveal that parents of behaviourally inhibited children have significantly higher rates of social phobia, histories of childhood anxiety disorders, or a continuing anxiety disorder (Biederman et al., 1995).

Furthermore, studies have demonstrated that inhibited children have a greater prevalence of anxiety disorder than non-inhibited children and controls. For example Beiderman et al. (1990) investigated a non-clinical sample, and a clinical sample. Results revealed that inhibited children indeed had an increased risk for childhood anxiety disorders. However, in support of the role of environmental factors, a 3-year follow-up study conducted by Biederman et al. (1993a) found that at follow-up, although inhibited children showed higher rates of anxiety disorders, behavioural inhibition alone did not predict later anxiety disorders for inhibited children whose parents did not have an anxiety disorder.

Findings from a study by Kagan, Snidmand, Zenter, and Peterson (1999) in their longitudinal investigation of infant temperament add further support to the role of behavioural inhibition in the development of anxiety disorders. One hundred and sixty four children from different infant temperament categories were followed up when they were seven years of age. Kagan et al. (1999) found that children who had been identified

as highly reactive infants at four months were more vulnerable to the development of anxiety symptoms, more subdued as they interacted with an unfamiliar person, and tended to be cautious on task and uncertain in their responses compared to infants classified as low reactive. This suggests that the development of anxious symptoms in later childhood is influenced by temperamental factors. However, given that less than 10% of the original infants classified as highly reactive went on to develop anxiety symptoms, temperamental factors appear to be more of a diathesis to the development of anxiety rather than a direct cause.

In summary, behavioural inhibition can be considered a risk factor for the development of an anxiety disorder. However, early childhood temperament is clearly not the complete explanation for the development of childhood anxiety problems. Many children who show a temperamental style of behavioural inhibition do not proceed to develop anxiety disorders or anxiety symptoms (Biederman, et al., 1993; Rosenbaum, et al., 1993; Kagan et al., 1999). Thus additional factors are also likely to play an important part in determining the development of anxiety disorders.

Environmental Factors

Family Process Model

Given that genetic factors play only a modest, although significant role in the development of anxiety disorders, environmental contributions must also be considered. This has led to the initiation of familial studies to examine the relationship between parental behaviour and childhood anxiety. These studies suggest that in general, parents of anxious children behave in ways that increase the chance that their child will behave in an anxious manner.

A recent review of child-rearing styles (Rapee, 1997) points to a strong association between high levels of maternal control and anxiety, and between maternal rejection and depression. Findings from Siqueland, Kendall, and Steinberg's (1996) study supported this result, with independent blind observers rating parents of children with anxiety disorders as less granting of psychological autonomy than parents of the control children. In addition, Siqueland et al. found that anxious children rated both of their parents as less accepting than did control children. Dumas, Serketich, and LaFreniere (1995) noted that anxious parent-child dyads were characterised by high parental control and aversiveness. Results from a study conducted by Hudson & Rapee (2001) using an observational design with clinically anxious children found similar findings. Their results demonstrated that mothers of anxious children were more involved and more intrusive than mothers of non-clinical children, and also more negative during the experimental interactions.¹ Thus, it appears that maternal overprotection not only conveys the perception to the child of the continual presence of threat and danger, but also restricts the child's opportunities to develop successful coping strategies, and may prevent the child from developing more optimistic and realistic cognitive appraisals of the world (Hudson & Rapee, 2001; Rapee, 1997).

Preliminary findings from a study of offspring of anxiety-disordered parents (Boer, 1998 cited in Boer & Lindhout, 2001) demonstrate that anxious parents themselves reported a somewhat less affectionate, and more controlling rearing style. Interestingly, this was more so if they had a child with an anxiety disorder, than if their child had not (yet) developed an anxiety disorder. In regard to these findings, two

¹ These latter results differ to the findings of previous child studies, which have failed to demonstrate a relationship between maternal criticism and anxiety (Grüner, Muris, Merckelbach, 1999; Hirshfeld, Biederman, Brody, Faraone, & Rosenbaum, 1997; Stubbe, Zahner, Goldstein, & Leckman, 1993).

possible interpretations are available: (1) only anxious parents with a less affectionate, more controlling parental style produce anxious children, or (2) only when an anxious parent has an anxious child, will she develop a less affectionate, more controlling parental rearing style. In other words, this raises the question of the child's contribution to this style of parenting. In order to investigate such a proposition, Boer (1998 cited in Boer & Lindhout, 2001) investigated whether the reported parental style differed between anxious children and their non-anxious siblings. The results suggested it did. Specifically, anxious children reported more maternal control, while their healthy siblings did not. This suggests that the anxious child also has an effect on the parents' parenting style. A notable limitation of Boer's study however, is the small sample sizes, thus further investigation is needed before definitive conclusions can be drawn.

From a learning-theory perspective it has been suggested that the parents of anxious children tend to model, prompt, and reinforce anxious behaviour in their children. Dadds, Barrett, Rapee, and Ryan (1996) observed that parents of anxious children tend to attend less to their child's brave, non-anxious behaviour than to their anxious, avoidant behaviours. It would seem then that for these anxious children the environmental consequences of brave, non-anxious behaviours might be considerably less reinforcing than the consequences of anxious behaviours. From an operant conditioning perspective, anxious children could then be expected to engage in less approaching 'brave' behaviour and consequently utilise more anxious behaviour in the future.

A study conducted by Barrett et al., (1996) also indicated that parents of anxious children differ from other parents in terms of the way they teach their children to interpret

and respond to ambiguous threat cues. Specifically, Barrett et al. (1996) found that after family discussion, the likelihood of anxious children devising an avoidant solution increased significantly. This effect was not found for nonanxious comparison children. Hence, it appears that the family process can facilitate expression of the child's vulnerabilities to anxious avoidance. Shortt, Barrett, Dadds, and Fox (2001) found similar results, indicating that families do influence children's cognition and avoidant responses, however the direction of familial influence was dependent on experimental context (i.e. whether parents perceived the experimental task as relevant or irrelevant). That is, for the social threat scenarios, 40% of children in the irrelevant condition changed to an avoidant response following discussion with their parents, compared to only 13% of children in the relevant condition. The finding that fewer families had an influence on children's responses in the relevant condition is consistent with previous research where anxious children have been found to "fake good" when being assessed. Taken together the evidence suggests that childhood anxiety disorder may be associated with a parenting style, which interferes with children's attempts at solving their own problems, and instead emphasizes threat in situations, and encourages children's avoidance behaviour.

The influence of parental modelling has been further implicated by the very presence of anxiety responses, which are often evident amongst children who have had no direct experience with the feared object or situation. For instance a child might be afraid of spiders despite never having been bitten by one. According to social learning theory, the child may have learned to fear spiders because he/she observed their parent becoming anxious when confronted by a spider. Early empirical support for this theory

comes from a single case design study conducted by Bandura and Rosenthal (1966). In this research, the participant observed an individual repeatedly displaying pain cues in response to an auditory stimulus. Consequently, the participant gradually developed an emotional aversion to the sound. Following this initial finding, a number of other studies have sought to examine the acquisition of fear through modelling with larger sample sizes. However most of these studies have used retrospective self-reports as their method and have focused primarily on adults with specific phobias (Öst, 1987; Öst & Hugdahl, 1981) or broader fears such as panic disorder, hypochondriasis and anxiety sensitivity (Ehlers, 1993; Watt, Stewart & Cox, 1998). The use of this methodology has been criticised with researchers arguing that (1) anxious reactions are likely to be far too complex and subtle to be assessed using retrospective reports and (2) that the critical period for acquisition of many fears is early in life (Menzies, 1995; Öhman, 1985, Rapee, 2001).

Gerull and Rapee (2002) sought to overcome these limitations by conducting an observational study with a sample of 30 toddlers. Toddlers were shown a rubber snake and spider, which were alternately paired with their mother's facial expressions, that were either negative or positive. Both stimuli were again presented after a 1 – and a 10-minute delay, while mothers maintained a neutral expression. Results revealed that toddlers showed greater fear expressions and avoidance of stimuli following negative reactions from their mothers regardless of gender. Of significance for theories of fear acquisition, was the finding that the fear and avoidance demonstrated by the children in response to the negatively paired stimulus, persisted for up to 10 minutes. Thus it appears that toddlers as young as 15 months can learn threat associations to novel, fear-

relevant stimuli based on a relatively brief affective reaction from their mother. Despite these findings, further research is needed to replicate these findings, and longitudinal studies are required to determine the effect of modelling in the development of anxiety disorders across the lifespan.

Taking the effect of parental modelling one step further, social learning theory would also predict that a child who has developed an avoiding method of coping with situations and people (perhaps by learning this strategy of avoidance by watching their parents), would not avail themselves to opportunities to practise and to integrate more appropriate coping strategies. A vicious cycle may then become established of anxious avoidance, followed by isolation, which negatively reinforces further avoidance. Support for this view comes from work by Bruch and colleagues (Bruch, 1989; Bruch & Heimberg, 1994) using retrospective reports of adult social phobics on their family life. These social phobics reported that their families sought to isolate them from social experiences, and placing undue importance on the opinions of others. Consequently this led to increased social fear and further avoidance, subsequently resulting in their diagnosis of social phobia.

From a theoretical standpoint, it has recently been suggested that social learning processes *and* attachment processes, when operating with a severely inhibited or anxious child can become locked together in a vicious cycle that may maintain and magnify anxious responding. Dadds and Roth (2001) propose that inhibited children are likely to place excessive demands on parents for soothing and comfort. Initially parents may respond to these child demands by acting in a manner to protect and soothe the child. Eventually, however, insecure attachment may develop between the child and the parent,

given that the child's demands for soothing stretch well beyond the parental threshold of availability. Consequently, the child is met with rejection or attempts by the parent to drive him or her towards independence. A study conducted by Fox and Calkings (1993) revealed how the parents' attempts to push the child away resulted in intensifying stress in the child and amplifying the child's demanding behaviour. Patterson (1982) describes a 'coercion trap' wherein a child's demands are soothed by parental intervention, which reinforces the child for placing the demands, and negatively reinforces the parent because the demands cease. Thus, the likelihood of this pattern being repeated in similar situations is increased, and any attempts by the parent to ignore the child in the future is likely to result in escalating demands (coercion) from the child.

As such, attachment relationships, which emphasize the role of child-parent interactions, have been implicated as a significant risk factor in the literature. Numerous studies of clinic referred samples of children and adults show relatively low rates of secure attachment, that is, parent-child relationships characterised by predictable, stable and generous levels of care and support compared to non-clinic samples (Dadds, Barrett, Cobham, 1997). More recently, Warren, Huston, Egeland, and Sroufe (1997) assessed 172 children at 12 months and then later at 17.5 years of age. Their results suggested that a pattern of anxious resistant attachment at 12 months predicted later anxiety disorder, even after the effects of maternal anxiety and infant temperament were removed. However, like the temperament model, the attachment model alone does not provide a complete description of the development of anxiety disorders. Specifically, it lacks an explanation for the heritability of anxiety disorders or the physiological characteristics of inhibited children. Moreover, because mothers are more likely than fathers to be in the

role of primary attachment figure, this model would predict that children of anxious mothers are at increased risk for the development of anxiety disorders. However, research contradicts such a proposition, instead confirming that an anxiety disorder in either parent increases the child's risk (Mannassis, & Bradley, 1994).

In sum, from the literature reviewed above, there is strong evidence that parent's childrearing behaviours are related to child anxiety. Specifically, the parent-child relationships appear to be characterised by overprotective, over involved style of interactions. Preliminary evidence also suggests that this relationship may be reciprocal, whereby the anxious child influences the parenting style exhibited. Research has also implicated the role of parent's modelling, prompting and reinforcement of anxious behaviour, as well as highlighting the role of parents on the interpretations and responses to threat by their anxious child. These studies highlight the gains that can be made by studying anxiety in its social context using direct observation procedures and integrative theoretical models. However understanding the development of anxiety requires consideration of all theoretical models. As suggested by Boer & Lindhout (2001) "we can only begin to understand the contribution of family and genetic contributions to child anxiety disorder when we are aware of their interplay" (pg. 250).

Aversive Conditioning Model

Traumatic life events have also been proposed as risk factors, particularly in relation to the development of phobic disorders. As early as 1916 John Watson conceived that anxiety disorders could be understood in terms of conditioning theory. His later empirical contribution with Rosie Rayner (e.g. Watson & Rayner, 1920 cited in Field & Davey, 2001) has gone down in psychological history with the 'little Albert

study'. In this study, Watson and Rayner attempted to condition a 9-month-old child (named Albert) into fearing a white rat. They pre-tested Albert to ensure that he was not initially fearful of the rat (which acted as the conditioned stimulus CS), and also established that he was fearful of a loud noise made by banging a hammer on an iron bar (the unconditioned stimulus UCS). They then proceeded to hit the iron bar every time Albert saw or touched the rat, thus scaring the child. After several pairings of the rat with the loud noise, Albert began to cry when the rat was presented without the loud noise. Despite being an overly simplistic model ignoring the influence of previous experience with the CS and UCS there are some studies that confirm that fear inducing or traumatic experiences during childhood can lead to extreme and persistent fear. For example, Dollinger, O'Donnell and Staley (1984) studied 29 child survivors of a severe lightning strike. They found that these children showed significantly more intense fears of thunderstorms, lightning and tornadoes than control children. In a subsequent study, Yule, Udwin, and Murdoch (1990) studied 25 adolescent females who survived the sinking of the cruise ship called Jupiter. Results revealed, that when compared to the matched control group of the same age, the survivors showed an excess of fears relating to ships, water-travel, and swimming.

Berge, Veerkamp, and Hoogstraten (2002) examined the relative importance of invasive treatment experiences in the acquisition of dental fear in 401 children (aged 5-10 years). Overall their results supported this relationship, although with the relation between the amount of dental work and dental fear was found to be very moderate. Interestingly, the sequence of dental procedures and visits in a child's dental history was found to be related to the children's level of dental fear. That is, low fearful children

were found to have experienced more check-up visits before they underwent their first restorative treatment than fearful children. This suggests that children with a longer history of non-invasive visits are less likely to develop high dental fear than children who have experienced invasive treatment earlier in their dental history.

Whereas traumatic experiences are somewhat uncommon, children are more likely to be faced with stressful or negative life events such as family conflict, parental divorce or separation, death of a family member, and frequent moves to new schools (Donovan & Spence, 2000). Research suggests that anxious children have experienced a greater number of such events compared to non-anxious children (Benjamin, Costello, & Warren, 1990; Goodyer & Altham, 1991), indicating that stressful life events may be a risk factor in the development of anxiety disorders in children. A recent study by Spence et al (2002) found the likelihood of elevated anxiety symptoms in adolescence increased significantly if the mother had experienced relationship difficulties or marital status change (separation, divorce or new partner) during the child's first 5 years of life. The experience of poverty during the first 5 years of life also had a small but significant influence on the development of anxiety symptoms. However on their own, aversive or negative life events are clearly not a satisfactory explanation for the development of anxiety disorders. Specifically, many anxious children do not experience specific negative life events or aversive experiences, and many children survive trauma and negative life events without clinically significant psychological problems (Goodyer, Wright & Altham, 1990; Aitken, Lister & Main 1981). This has led to investigations of protective factors, which buffer the effects of risk factors. These protective factors will be discussed in more detail shortly.

Individual Factors

Cognitive Factors and Threat Interpretation

The cognitive view of childhood anxiety assumes that anxiety is mediated by distorted and maladaptive cognition. While lagging behind the research conducted with adults, the evidence that childhood anxiety is associated with distorted cognition is growing. Two major cognitive approaches toward childhood anxiety and anxiety disorders include cognitive behavioural theories and the information processing perspective, both originating from the pioneering work of Beck. Beck, Emery and Greenberg (1985) conceptualised that cognitive processing involved in anxiety consisted of a heightened perceived threat (i.e., judging threats as more serious) and underestimation of coping ability. In a review of the cognitive literature associated with anxiety disorders, Prinz (2001) noted that the key difference between these two approaches is more methodological than theoretical. Specifically, the cognitive behavioural approach relies more heavily on self-report measures, while the information processing approach utilises experimental methods (e.g., Stroop task, Probe-detection task) for studying anxiety related cognition. To follow is a brief review of studies conducted exploring child anxiety cognition from both these approaches.

Several studies using self-report measures have examined the cognitive processes of anxious children and demonstrate that anxious and anxiety-disordered children have been found to show characteristic patterns of cognition. For example studies of high test-anxious children reveal that these children tend to exhibit higher rates of cognitive errors, such as catastrophising, overgeneralising, personalising and selective abstraction (Leitenberg, Yost, & Carroll-Wilson, 1986). In addition, these children also report

greater proportions of negative self-evaluative thoughts (e.g. “I’m too dumb for this”) and more off-task thoughts than low test-anxious children (King et al., 1995; Prinz, Groot, & Hanewald, 1994; Zats & Chassin, 1985). Higher proportions of negative cognitions have also been demonstrated in studies of dental-anxious children. For example in a study conducted by Prinz (1985), dental-anxious children reported higher levels of negative self-talk related to the threat of pain and desire to escape the situation than children low on dental anxiety prior to a dental procedure. Similar patterns of negative cognitions have also been found in studies by Kendall and Chanksy (1991) and King, Mietz, Tinney, and Ollendick (1995) and in studies for high trait anxious children (Fox, Houston & Pittner, 1983; Houston, Fox & Forbes, 1984), for socially phobic children (Beidel, 1991) and children who met the criteria for an anxiety disorder (Kendall, 1994). Taken together, these studies suggest that in anxiety-provoking situations, high anxious children endorse or report more negative self-cognitions than low-anxious children.

However, the role of positive self-talk in anxiety is less clear. Despite logic suggesting that the presence of positive cognition would be associated with lowered levels of anxiety, research to date offers conflicting results. Some studies have found that low anxious children compared with high anxious children reported more positive cognition, such as on-task cognition, positive self-evaluative and coping thoughts (Zats & Chassin, 1983; 1985) while others have not found such a relationship. For example Prinz (1986) examined the self-talk of children aged 8-12 years during a stressful situation. Their results revealed that coping self-talk was associated with reduced performance quality. Similarly, positive self-statements were not found to be related to test anxiety in non-referred fifth and sixth graders (Prinz et al., 1994) or to trait anxiety in fourth graders

(Fox et al., 1983; Houston et al., 1994). Further, Kendall and Treadwell (1996) found that negative but not positive cognition was significantly related to anxiety. Such findings lend support for Kendall's notion of 'the power of non-negative thinking', which refers to the idea that it is the lower frequency of negative cognitions as opposed to the presence of positive cognitions that differentiates anxious and non-anxious counterparts.

Attentional processing of anxious children has recently received considerable theoretical and empirical interest (Ehrenreich, & Gross, 2002; Martin, Horder & Jones, 1992; Vasey & Daleiden, 1996; Vasey, Dalediden, Williams, & Brown, 1995; Vasey, El-Hag, & Daleiden, 1996). A common feature of the cognitive theories of anxiety in adulthood is the prediction that anxious subjects will show an attentional bias in favour of emotionally threatening information. Several studies have shown that this attentional bias is operative among children. For example from the information processing perspective, Martin et al (1992) used a Stroop colour-naming task (Stroop, 1935) to compare children aged 6 to 13 years who had a fear of spiders with children who did not have a fear of spiders. This task involves participants naming the colour that a word is written in while attempting to ignore the word content. Their results found that spider-phobic children were significantly slower to name the colour when spider – related words were present, while children who were not fearful of spiders showed no impairment. Similar findings were found in studies using the probe detection task, which presents a series of word pairs (where one word is threatening, while the other is neutral) on a computer screen for a specified period of time. This task requires participants to read the top word and press a key when a dot probe replaces one of the two words. This is based on the premise that

the reaction time to the dot probe measures visual attention to the word that is replaced by the dot.

For example Vasey et al (1995) investigated performance differences of anxious and normal control children aged 9-14 years. Results showed that anxious children demonstrated an attentional bias toward threat words given that they identified probes significantly faster when they were preceded by threatening words, than when they were preceded by neutral words. More recently, Taghavi, Neshat-Doost, Moradi, Yule, and Dalgleish (1999) investigated attentional processes in a sample of 24 anxious children. Once again, results showed that clinically anxious children selectively attended to threat stimuli compared to normal controls. Mathews and MacLeod (1994) have suggested the possibility that some anxious individuals may be able to use controlled processes to inhibit attention to threatening stimuli once they are consciously perceived. This view is consistent with findings from laboratory studies conducted by Vasey and Daleiden (1996) and Daleiden and Vasey, (1997) suggesting that some high anxious children are able to shift attention away from threatening information. This suggests that an attention shift may help anxious children to regulate their anxiety and enhance their behavioural organization in the face of minor signals to threat.

With respect to interpretations of ambiguous information, evidence from self-report studies also suggests that anxious children tend to favour threatening over nonthreatening interpretations. Barrett, Rapee, Dadds, and Ryan (1996) examined interpretations of ambiguous situations in samples of anxiety disorder children, children with oppositional defiant disorder, normal controls and their parents. After presenting subjects with 12 vignettes of ambiguous situations (i.e. they could be interpreted as either

threatening or nonthreatening), subjects were asked about what was happening during each situation. They were then presented with two possible neutral outcomes and two possible threatening outcomes and asked which outcome was most likely. In both the free choice and forced choice conditions, both child and parent reports yielded similar results. The oppositional defiant group interpreted the situations as more threatening than the anxious children who in turn perceived them as more threatening than normal controls.

In an attempt to replicate these findings, Chorpita, Albano, and Barlow (1996) using a sample of four anxious children aged 9 - 13 years, administered a shortened version of the ambiguous situation task. Consistent with Barrett et al's findings, results demonstrated that clinically anxious children showed a threat bias when interpreting ambiguous situations. In a more recent study Bögels and Zigterman (2000) investigated information processing biases in 15 children diagnosed with social phobia, separation anxiety disorder, and generalised anxiety disorder, by comparing their responses to those given by externalising and non-clinic children. In their study, children were similarly asked to give their interpretations to ambiguous stories. Findings indicated that anxious children reported more negative cognitions and had lower estimations of their own self-efficacy to cope with danger than both control groups. Similar findings were found in a study conducted by Short, Barrett, Dadds, & Fox (2001b). One hundred and one anxious children, alongside 23 externalising children and 23 non-clinical children were asked to interpret seven ambiguous situations adapted from Barrett et al's (1996) original study. Results revealed that anxious and externalising children endorse a high number of threat

interpretations than non-clinic children, again replicating the results of the Barrett et al (1996) study.

In summary, it appears from the studies reviewed above that anxious children show characteristic patterns of cognitions. Specifically, high anxious children demonstrate higher rates of cognitive errors and utilise a greater proportion of negative self talk than control (or low anxious) children. The research also suggests the existence of an attentional bias to threat, which has been supported by both information processing and cognitive-behavioural approaches. The question surrounding how these threat bias and negative patterns of cognitions arise remains unanswered. That is, whether children develop these characteristic patterns of cognition after the onset of anxiety disorder, or whether these cognitions are risk factors that preclude the development of the anxiety disorder is unclear. Obviously further research is needed to help clarify the direction of these effects.

Summary of Risk Factors

From the research reviewed above it has been demonstrated that no single theory alone can adequately explain the development of anxiety disorders, although each makes a valuable contribution. As such, a generally accepted multi-component view of the aetiology of anxiety disorders in children includes biological, cognitive and behavioural components. Dysfunctional anxiety in this model is considered a self-perpetuating cycle of elevated biological response to stress, debilitated cognition and avoidance of stressful circumstances reinforced by environmental factors including a parenting style, which interferes with children's attempts at solving their own problems, and instead emphasizes threat in situations, and encourages children's avoidance behaviour. The exposure to

traumatic or aversive situations also increases the risk of children developing anxious responses. It is important to note however, that there are many individuals who experience particular risk factors that do not proceed to develop an anxiety disorder. This has led to a recent shift in the literature to also focus on protective factors, which produce a resilience effect, thus limiting the influence of risk factors (Coie et al., 1993; Mrazek & Haggerty, 1994). These protective factors will now be discussed.

Protective Factors

Protective factors are important as there are many risk factors that, despite considerable advancements in research and technology, are currently impossible to manipulate (e.g. genetics, early temperament), or unrealistic to eliminate (e.g. traumatic and negative life events) (Donovan & Spence, 2000; Werner, 2000). Hence an alternative, or additional strategy for prevention, is to build up protective factors. Although protective factor research has made major advances, it is less well developed than risk factor research (Donovan & Spence, 2000). In fact most of the literature reviewed failed to attend to the protective factors that buffer children against the development of anxiety disorders specifically. Of the research that has been conducted, most research in this area has focused on short-term studies in middle childhood and adolescence. There has also been a growing interest in longitudinal studies of individuals who grew up in chronic poverty, were exposed to parental psychopathology, experienced the break-up of their family, or were exposed serious caregiver deficits (Beardslee & Podorefsky, 1988; Bleuler, 1974; Garmezy, 1981; 1984; Hetherington, Stanley-Hagan & Anderson, 1989; Rak & Patterson, 1996; Rutter, 1979; 1985; Werner, 1992; Werner &

Smith, 1992) which offer important insights into variables that may provide a protective effect.

Despite the heterogeneity of all these studies, a common core set of individual characteristics and sources of support that can buffer the effects of both biological and psychosocial risk factors during childhood can be discerned. These protective buffers appear to transcend ethnic, social class and geographic boundaries (Werner, 2000). These protective buffers also appear to have a more profound impact on the life course of individuals who grow up in adversity than do specific risk factors or stressful life events (O'Grady & Mertz, 1987; Werner, 2000). In general, protective factors can be categorised into two broad factors: (1) individual child characteristics that affect the individual's ability to cope with stress (e.g. positive cognitive style, communication skills, coping and problem solving skills) (O'Grady & Mertz, 1987; Donovan & Spence, 2000), and (2) those that arise from the buffering effects of social support.

In regards to individual child characteristics, studies conducted by Rutter (1985) and Werner and Smith (1992) found that young children who were resilient under adverse conditions have personality characteristics that elicit positive responses from a wide range of caregivers. For example, Werner (1992) studied 660 youths from birth to 32 years of age. Resilient boys and girls were consistently characterised by their mothers as active affectionate, cuddly, good natured, and easy to deal with. These resilient children also displayed a healthy androgyny in their interests and activities and engaged in hobbies that were not narrowly sex-typed (Werner, 2000). Such activities appeared to give them solace in adversity and provided them with a sense of mastery and pride. As adolescents, their teachers were favourably impressed by their communication and

problem solving skills. Similarly, Rutter (1979) conducted a longitudinal study with a sample of Isle of Wight (England) and inner London children who had experienced parental marital discord, low socio-economic status, overcrowding or large family size, parental criminality, maternal psychiatric disorder, or placement in government care. A unique factor that distinguished resilient children from those who become overwhelmed by risk factors was an active evocative approach toward problem solving, enabling them to negotiate an array of emotionally hazardous experiences.

In line with this, Spence (2001) argues that the type of responses children use to cope with unpleasant experiences greatly influence the degree of fear, anxiety and distress they experience. Research conducted with adults have categorised strategies for coping with difficult or challenging situations as either problem-focussed, avoidant, or emotion focussed (Billings & Moos, 1981; Endler & Parker, 1990a, 1990b). As defined in Donovan and Spence (2000) problem focused coping involves implementing strategies that directly address or minimise the effect of the problem (e.g. through the use of positive self talk). On the other hand, emotion focussed coping utilises methods aimed to reduce the subjective distress associated with the problem. Lastly, avoidant coping includes attempts to avoid or escape the problem. Findings from studies conducted with adults suggest that emotion focused coping and avoidance coping strategies are associated with higher levels of anxiety in response to stressful life events (Donovan & Spence, 2000). Preliminary findings with children suggest similar effects in that these coping strategies are also associated with higher levels of anxiety in children and adolescents (Compas, Malcarne, & Fondacoro, 1988; Ebata & Moos, 1991). Clearly further research on coping strategies is necessary, however at this stage it does appear

that problem-focussed rather than emotion focussed or avoidance strategies may be important protective factors for preventing the development of childhood anxiety.

Most studies of resilient children and youths report that intelligence and scholastic competence are positively associated with the ability to overcome great odds. (e.g. Rutter, 1985; Rutter et al., 1979; Werner & Smith, 1992). Correlations between measures of intelligence and effective adaptation tend to increase from early to middle childhood and adolescence. It appears logical to suggest that youngsters who are better able to appraise stressful life events are also better able to figure out strategies for coping with adversity, either through their own efforts or by actively reaching out to other people for help (Werner, 2000). This finding has been replicated with children from all socio-economic groups and from diverse ethnic backgrounds, in studies of African American, Asian and Caucasian children (Egeland et al., 1993; Herrenkohl et al., 1994; Radke-Yarrow & Brown, 1993; Seifer et al., 1992; Werner & Smith, 1992). Other individual factors identified include an optimistic view of experiences even in the midst of suffering, internal locus of control (i.e. belief they were capable of influencing their environment positively), and an ability to maintain a positive vision of a meaningful life (Rutter, 1986; Garnezy et al., 1984; Rak & Patterson, 1996; Werner & Smith, 1992).

In early childhood, having a close relationship with at least one parent who is responsive and accepting was also found to provide a substantial protective effect (Dalianis, 1994 cited in Werner, 2000; Rutter, 1985; Werner & Smith, 1992). A close relationship between child and parents during the first five years of life is especially important because primary attachment relationships are developed during this period. Our knowledge about the causes of childhood anxiety disorders provides further support for

the protective function that parents can provide. For example as discussed earlier, parents who encourage prompt and reinforce their children for being brave and facing up to challenging situations are fostering self-esteem, desired coping behaviours and self-confidence.

Werner (1984, 1986), Garnezy et al., (1984), Bolig and Weddle (1988), Beardslee and Podorefsky (1988) also identified protective community factors, which serve as buffers for vulnerable children. These include the relationships that children develop outside the family, with peers, teachers, school counsellors, coaches, mental health workers, and any available external support system such as youth groups, school and recreational activities, all of which build competence and provide children with role models and support (Jones and Offord, 1989; Werner, 1989; Werner & Smith, 1992). For example a study conducted by Quamma and Greenberg (1994) found that family social support was a significant moderator between stressful life events and self-reported anxiety in special education school children. Similarly a study conducted by Cowen, Pedro-Carroll, and Alpert-Gillis (1990) with 102 children of parents who had divorced found that children with higher ratings of overall supports reported significantly less anxiety and worry. Further support for this protective factor comes from findings of a study conducted by White, Bruce, Farrell, and Kliever (1998) with children exposed to community violence. Results found a strong negative relationship between anxiety levels and social support. Taken together, these studies also highlight social competence as an important aspect of resilient children, which serves to increase the likelihood of individuals building social support networks.

Notably, among the most frequently encountered positive role models in the lives of children is a favourite teacher. Studies specifically conducted to explore the role of teachers as protective buffers in the lives of children who grew up in homes marred by poverty, parental mental illness, alcoholism and domestic violence, agree in their findings that teachers have a significant positive impact on at-risk children (Freedman, 1993; Radke-Yarrow & Brown, 1993; Werner & Smith, 1992). Thus it appears that for the resilient youngster, a special teacher was not just an instructor of academic skills but also a confidant and positive role model (Werner & Smith, 1992; Werner, 2000).

From the review of the protective literature above, it is clear that our knowledge of protective factors is significantly less than our knowledge regarding risk factors in the development of childhood anxiety disorders. Obviously further research should be conducted into the possibility of additional protective factors and explore the interactions that protective factors may have with the many anxiety risk factors in the development of childhood anxiety disorders.

Summary of Risk and Protective Factors

The development of anxiety disorders during childhood consists of a complex interaction between biological, environmental and psychological factors. Implicated risk factors include genetic factors, anxious resistant attachment, a child temperament style of behavioural inhibition, traumatic, negative, stressful life events, parental anxiety, and parenting style characteristics and behaviours. As suggested by Donovan and Spence (2000), it is likely that additional risk factors beyond those reviewed above also play a role in the development of anxiety disorders. For example, low socio-economic status, poor housing conditions, large family size and marital discord. However, in the case of

childhood anxiety disorders, the relationship of these variables remains unclear. Despite the identification of these empirically supported risk factors, not all children exposed to these risk factors proceed to develop an anxiety disorder. This has led to a recent shift in the literature towards factors that buffer children against these risk factors, producing a resilience effect, thus limiting the influence of risk factors. Implicated protective factors include good communication and problem solving skills, reinforcement, and prompting by parents for children who are brave and face up to challenges rather than avoiding them, intelligence, scholastic competence, and community support factors including the relationships that children develop outside the family.

In order to help vulnerable youngsters become more resilient it appears that we need to decrease their exposure to potent risk factors (i.e. negative family processes, insecure child-parent attachment relationships, trauma) and increase their competencies (i.e. coping skills, problem solving abilities, self esteem). Moreover, to be successful in prevention it appears that targeting the child in the context of the family and community would be the optimal direction for resources. Table 1 summarises some of the key risk and protective factors thought to be involved in the development and maintenance of anxiety disorders during childhood. This table illustrates the way in which an awareness of these risk factors provides pathways into methods that may be incorporated into preventive programs. Notably, many of these methods form the foundations of current treatment programs (Coping Cat; Kendall, 1990; Coping Koala; Barrett, 1991; FRIENDS; Barrett, Lowry-Webster & Holmes, 1998 a-f; Silverman et al., 1999).

Table 2.1.

Risk and Protective Factors involved in the Development of Anxiety Disorders

Risk Factors	Protective Factors	Preventative Approaches
BIOLOGICAL		
<ul style="list-style-type: none"> • Genetic Influences • Prenatal, perinatal and postnatal 		
ENVIRONMENTAL		
<ul style="list-style-type: none"> • Parent Psychopathology – particularly parental anxiety • Poor parenting skills and parental behaviour. ➤ Modelling of fearful responses & Cognitive styles ➤ Operant conditioning of fear behaviours • Traumatic life experiences (e.g. natural disasters) • Physical Environment factors (e.g. presence of snakes, dogs) • Negative and stressful life events (e.g. parental separation, bereavements, life transitions (e.g. changing schools frequently) • Adverse sociocultural factors (Low SES, poor housing, large family size, marital discord)^a relationship with such variables with child anxiety still unclear 	<ul style="list-style-type: none"> • Positive parent/child relations • Reduction of parents own anxious behaviour • Modelling of nonfear/ coping skills • Reinforcement and encouragement for brave behaviour • Instructions and education re: feared event and coping skills • Pre-exposure (Latent inhibition) • Social support • Family structure and cohesion • Extended family/ social support • Problem solving skills • Cognitive style • Social skills • Positive peer relationships • Coping skills repertoire • Academic competence 	<ul style="list-style-type: none"> • Modelling of nonfear/coping skills • Operant conditioning of non fear behaviours • Changing parental attitudes • Instructions and education re: feared event • Environmental change (e.g. reducing aversive events/situations) • Enhancing family, child and environmental social support • Enhancing problem solving skills • Relaxation training • Cognitive Restructuring & skill training • Social skills training • Building social • Coping skill training • Exposure to feared situations
CHILD CHARACTERISTICS		
<ul style="list-style-type: none"> • Behavioural Inhibition • Physiological Reactivity • Temperament • Cognitive Style • Coping skills repertoire • Avoidance behaviour 		

Modified from Spence & Donovan (2000) & Spence, (1994)

^a Relationship with such variables and child anxiety disorders still unclear (Gittleman, 1986), however as many disorders share common risk factors, it is likely that such sociocultural factors may represent further anxiety risk factors as yet unexplored.

Chapter three now proceeds to review the present findings relating to current treatment and prevention strategies. This serves to demonstrate that treatment and prevention programs, under relatively ideal conditions, can reduce anxiety in children and youth (efficacy studies).

CHAPTER THREE

Prevention Prerequisites Part II:

Intervention And Prevention Strategies For Anxiety Disorders During Childhood

The previous chapter sought to review the solid knowledge base that now exists concerning factors that have been implicated in the development of anxiety disorders. This served to address the first prerequisite for establishing prevention programs asserted by Spence (1996a) and others (e.g. Holden & Black, 1999; Reiss & Price, 1996). Specifically, by demonstrating that sufficient knowledge exists regarding risk and protective factors to provide insight into target variables that may be incorporated into prevention programs. The aim of the current chapter is to provide an account of the second prevention prerequisite, which involves clinical trials demonstrating effective treatment of the disorder under examination.

Anxiety Research Demonstrating Treatment Efficacy

Previous research has consistently shown that anxiety disorders in late childhood and early adolescence can be effectively treated using brief psychosocial interventions. In 1994, Kendall conducted the first randomized clinical trial of cognitive-behavioural treatment (CBT) with 47 anxious children aged 9 to 13 years diagnosed with overanxious disorder, separation anxiety or avoidant disorder. Treatment was based on the Coping Cat Program (Kendall, 1990) which is a 16 session manualised treatment in which children are taught (1) to recognize anxious feelings and somatic responses to anxiety; (2) to identify cognitions and unrealistic expectations in anxiety provoking situations; (3) to develop more healthy and adaptive cognitive coping skills; (4) to formulate a plan to deal

with the situation by determining what actions might be helpful; (5) to evaluate the success of coping strategies; and (6) to use self-reinforcement as appropriate. These skills are taught in the context of the FEAR plan, where the word FEAR is an acronym whereby each letter represents a different skill learnt; **F**eeling frightened, **E**xpect good things to happen, **A**ctions and Attitudes to take, and **R**eward yourself. Results revealed that sixty four percent of the children who completed the Coping Cat cognitive behavioural treatment (CBT) program were diagnosis free at post treatment and these improvements were maintained both at 12-month follow-up and three-year follow-up (Kendall & Southam-Gerow, 1996).

In Australia Barrett, Dadds, and Rapee (1996) demonstrated similar effects with 79 anxious children aged between 7 to 14 years. They compared a CBT intervention called the “Coping Koala program” (which was based on Kendall’s Coping Cat program, 1990), with a CBT plus family management condition (CBT + FAM), and waitlist control group. Incorporating parents in the treatment of anxiety disorders is critical given that factors such as high parental control, parental anxiety and depression, and parental reinforcement of avoidant coping strategies have been implicated both as risk and maintenance factors for anxiety in children as discussed in previous chapters (Barrett et al., 1996; Biedel & Turner, 1997; Cobham et al., 1999; Hudson & Rapee, 2001; Mendlowitz et al., 1999; Rapee, 1997; Siqueland et al., 1996). Individual treatment sessions for the CBT condition were 60 to 80 minutes in length and lasted for 12 weeks. The waitlist condition was also 12 weeks in length. The family management condition comprised of (1) parent skills for managing child distress and avoidance, (2) parent skills for managing their own anxiety, and (3) parental communication and problem solving skills. At post-treatment,

61% of children in the CBT group no longer met a DSM-III-R diagnosis (APA, 1987) compared with 88% in the CBT + FAM treatment, and less than 30% in the waiting-list control group. The relative superiority of the CBT + FAM condition was maintained at 12-month follow-up. Moreover, five to seven years later at long-term follow-up ($N=52$), 85.7% no longer fulfilled diagnostic criteria for any anxiety disorder, with CBT and CBT+ FAM being equally effective (Barrett, Duffy, Dadds, & Rapee, 2001).

Kendall et al. (1997) conducted a third randomised clinical trial using a sample of 94 children aged 9 to 13 years with overanxious disorders, avoidant disorder or separation anxiety disorder. These results replicated previous findings demonstrating the superiority of CBT treatment compared to a waitlist control group where 71% of participating children no longer met the diagnosis for their primary anxiety disorder at post treatment, and 53% no longer met diagnostic criteria for their pre-treatment primary diagnosis at all. This compared to only two cases (6%) in the waitlist control condition. Once again, significant improvements were maintained at the 1-year follow-up period.

Further support for the involvement of parents in the treatment of anxiety disorders comes from a study conducted in Australia by Cobham, Dadds and Spence (1999). Sixty-seven children aged 7 to 14 years diagnosed with separation anxiety disorder, overanxious disorder, generalised anxiety disorder, simple phobia, social phobia or agoraphobia participated in the study. Children were divided into two groups on the basis of parental anxiety level as measured by the State-Trait Anxiety Inventory (Spielberger, Gorsuch & Lushene, 1970). Following this, participants were then randomly assigned to either a child only CBT intervention or a CBT plus parental-anxiety management group (CBT + PAM). Results revealed that 82% of children in the

CBT only group no longer met the diagnostic criteria for an anxiety disorder at post intervention compared to 80% in the CBT + PAM group. The findings were much less impressive for children whose parents were anxious, with only 39% of the CBT group no longer meeting the diagnostic criteria for an anxiety disorder and 77% of the CBT + PAM group. These findings suggest that CBT was efficacious in reducing anxiety for children with non-anxious parents. However, the addition of a parental component was important for diagnostic recovery for children with anxious parents. These patterns were generally maintained at 12-month follow up on the majority of assessment measures.

More recent studies conducted by King et al (1998) and Last et al. (1998) have provided additional support for the efficacy of individual CBT in the treatment of anxious children. Taken together, these findings clearly demonstrate the extended treatment effects and long-term clinical utility of cognitive-behavioural therapy in treating children suffering from anxiety disorders.

Recently the effectiveness of these treatment programs has been further demonstrated when presented in a group format. Although group format treatment for anxiety in children has been used for some time (e.g. Kondas, 1967; Ritter, 1968), it is only recently that group cognitive-behavioural treatment (GCBT) has been investigated in controlled clinical trials. For example Barrett (1998) conducted the first study in the efficacy of a group CBT program with 60 anxious children (i.e. overanxious disorder, separation anxiety disorder and social phobia) aged 7 to 14 years. Participants were randomly assigned to 3 conditions; (1) Group CBT (GCBT); (2) GCBT plus family management (GCBT + FAM) and wait-list (WL). The GCBT was based on the 12 session “Coping Koala Group Workbook” (Barrett, 1995) which originated from Kendall’s coping cat

workbook (1990) and the individual Australian version of this program “the Coping Koala Workbook” (Barrett, 1991). Results indicated that at 12-month follow-up both the GCBT conditions were efficacious relative to the waitlist control condition, (65 % and 25% diagnostic recovery respectively) although there was no significant difference between the two treatment conditions. At 12-month follow-up, 65% of children in the CBT + FAM condition were diagnosis free, compared to 85% of children in the GCBT condition.

A study conducted by Silverman, Kurtines, Ginsburg, Weems, Lumpkin and Carmichale (1999) provided further empirical evidence for the efficacy of GCBT in treating childhood anxiety disorders. Fifty-six children aged 6 to 16 years were randomly assigned to conditions with an assignment ratio of 2 to 1 (GCBT to control). Sixty-four percent of the children in the GCBT were free of diagnoses at post-treatment compared to 12.5% of children in the waitlist condition with results maintained at 3, 6 and 12-month follow-up.

Mendlowitz, Manassis, Bradley, Scapillato, Mieztis, and Shaw (1999) conducted a study examining the effect of cognitive-behavioural group intervention on anxiety, depression and coping strategies in anxious children. Participants were 62 families with children aged 7 to 12 years and were randomly assigned to three treatment conditions (1) parent and child 12-week intervention, (2) Child only 12- week intervention, and (3) 12-week parent only intervention. The waitlist group comprised of anxious children on a 2 to 6 month waitlist for treatment. Interventions for children were based on the *Coping Bear* workbook (Scapillato & Mendlowitz, 1993), a manual adapted from Kendall’s (1990) *Coping Cat* workbook. Interventions for parents were based on the “*Keys to*

Parenting your Anxious Child’ book (Manassis, 1996). Results demonstrated that all treatment groups reported fewer symptoms of anxiety. Beyond this, families in the parent and child intervention group reported using more active coping than families in the parent only or child only group. This study adds to the growing body of literature that group CBT is effective. However, a major limitation of this study is its reliance on self-report measures in the absence of diagnostic interviews and by a lack of follow-up data.

Similar findings were found in a study investigated by Flannery-Schroeder and Kendall (2000) with 37 children aged 8 to 14 years. Children were randomly assigned to an 18 week GCBT, individual CBT, or and waitlist condition. Results revealed that children in the treatment groups improved significantly in terms of diagnostic recovery (73% for individual CBT, 50% for GCBT) compared to the waitlist group (8%) at post treatment, with benefits maintained at 3-month follow-up. Despite a strong methodological design, comparisons between the two active treatments could not be made due to the limited sample size, which resulted in insufficient power to detect significant differences between the two groups.

Most recently, Shortt, Barrett, and Fox (2001), conducted a study with ninety-one clinically anxious children ranging from 6 ½ to 14 years old who were recruited from child mental health centres (15%), school guidance officers or parents (85%) following media advertisements. To maximise the number of participants available for treatment analyses (post-treatment vs. post-waitlist) participants were randomly allocated to a family based group cognitive behavioural treatment (FGCBT using the ‘FRIENDS’ program) or a waitlist control group with an assignment ratio of 3 to 1 respectively. Only children with a principal diagnosis of generalised anxiety disorder, separation anxiety

disorder or social phobia were included in this study. The FRIENDS program originated from the development of the Coping Cat (Kendall, 1990) and the Australian version called the Coping Koala (Barrett, 1995). The word 'FRIENDS' is an acronym which serves to help children remember the strategies taught during the program: **F** = **F**eeling worried? **R** = **R**elax and feel good, **I** = **I**nnner thoughts, **E** = **E**xplore plans, **N** = **N**ice work reward yourself, **D** = **D**on't forget to practise and **S** = **S**tay cool you know how to cope now! Although retaining the core components of CBT for childhood anxiety (exposure, relaxation, cognitive strategies, and contingency management), The FRIENDS program has a number of distinctive features. Firstly, it incorporates a family skills component, which includes cognitive restructuring for parents, partner support training, and encourages families to build supportive social networks. These strategies are taught in addition to training parents in appropriate use of reinforcement strategies (Barrett, 1998; Silverman et al., 1999). Given that parental factors are a risk factor for the development of child anxiety, programs incorporating sessions for parents may increase treatment efficacy. Secondly, the FRIENDS program also emphasises peer support and peer learning. Children are encouraged to make friends and to build their social networks. This is congruent with the literature reviewed previously, which showed that social support is a protective factor for childhood anxiety (Cowen et al., 1990; Jones & Offord, 1989; Quamma & Greenberg, 1994; Werner, 1989; 1992; White et al., 1998). Finally, the FRIENDS program includes attentional training for anxious children and encourages children to make internal attributions about their accomplishments. These procedures have been used in treatments with adults with anxiety problems (Rapee & Sanderson, 1998; Wells, 1997) and are consistent with risk factor research demonstrating the role

selective attention to threat (Barrett et al., 1996; Daleiden et al., 1997; Martin et al., 1992; Taghavi et al., 1999; Vasey & Daleiden, 1996; Vasey et al., 1995). Results indicated that 68% of children who completed the 12 session FGCBT were diagnosis free compared to 14% of children on the waitlist. Furthermore these benefits were maintained at 12-month follow-up, with 76% of children no longer meeting diagnostic criteria for an anxiety disorder.

Clearly these clinical trials indicate that anxiety disorders in late childhood and early adolescence can be effectively treated both in individual and group formats with benefits maintained at long term follow up. Furthermore, the evidence from these studies further suggests that involving parents can enhance the efficacy of CBT treatment. According to the criteria set out by Chambless and Hollon (1998) anxiety research with children should be considered efficacious. That is, they propose that a treatment is efficacious if it has been shown to be more effective than no treatment, a placebo, or an alternative treatment across multiple trials conducted by different research teams. Group design studies involving random assignment and well documented and thus replicable treatment procedures (e.g. as detailed in a manual) further enhance their efficacy. Thus it appears that the CBT findings for child anxiety are exemplary in many ways (Kazdin & Weisz, 1998). Notably, not only have findings been replicated by different research teams, but also replicated across countries (e.g. Australia, England and the United States).

Notwithstanding the strength of the empirical support for anxiety treatment in children, and as Tuma (1989) and Day and Roberts (1991) highlighted, of those in need of mental health services, less than 20% receive appropriate care. Children in need are not being reached, waiting lists are long, and no show rates and family dropouts

sometimes exceed 50% (Weist, 1999). Beyond this, due to the compliant and non-disruptive nature of anxious children, teachers and parents are often not aware that a child is suffering with anxiety problems. Even when awareness of anxiety problems exists, teachers and parents tend to minimise the seriousness of the affliction (Donovan & Spence, 2000; Esser, Schmidt & Woerner, 1990; Zubrick et al., 1997). Thus, it is not surprising that the majority of children with anxiety disorders do not receive the treatment they need. Furthermore, in cases where children are referred to treatment, the detrimental effects of the disorder upon school performance, and relationships with peers have already occurred and are difficult to undo or reverse (Donovan & Spence, 2000).

Meeting the demand for service will require not only more services, but also better targeting and use of existing services. Zubrick, Silburn, Burton & Blair (2000) argue that this demand can never be adequately met with treatment, which does little more than address more fundamental causes. What is required is investing into the science of preventing mental health disorders and in strategies that promote and protect good mental health and well-being. Hence the argument for the need of prevention is further bolstered, and is clearly the most important direction in which mental health services should move. The prevention of anxiety seeks to target a large number of individuals over a short period of time, avoid the high level of subjective distress on the part of children and their families, as well as reduce the large financial costs to communities at large.

The popularised saying that ‘prevention is better than cure’ is certainly a notion embraced by the medical profession. In fact, prevention is considered to be of equal importance to treatment research within the field of medicine. Mammograms, Pap smear

tests, breast and skin cancer screening, and immunisation are all examples of the acknowledged importance of prevention within the medical arena (Donovan & Spence, 2000). Although publications on prevention over the last five or so years have also increased considerably in the mental health sector, the majority of these papers, with some notable exceptions, have been theoretical in nature rather than rigorous empirical attempts at evaluating preventive strategies, especially in regard to childhood anxiety disorders (Donovan & Spence, 2000).

Theoretical Approaches to Prevention

Prior to reviewing the literature in terms of anxiety prevention, it is necessary to define the different models of prevention. Traditionally, the three levels of prevention described by Caplan in 1964 assumed that a clear division could be made between a state in which a psychological disorder is not present, to one in which it is present in mild forms, eventuating in the onset of a full-blown clinical disorder. These three levels were known as (1) *primary prevention*, which aimed to reduce the incidence of new cases through intervention before disorders occur; (2) *secondary prevention*, which aimed to reduce the prevalence of disorders through early identification of problems with intervention occurring prior to the disorder becoming severe; and (3) *tertiary prevention*, which aimed to reduce the prevalence of disorders by reducing their duration through treatment and prevention of relapse.

However more recently, it has been acknowledged that mental health problems typically develop in a gradual progression or trajectory, rather than clear cut stages in which a disorder is absent one moment and present the next (Coie et al., 1993). Hence, the Institute of Medicine proposed an alternative prevention model (Mrazek & Haggerty,

1994). This model involves three levels of prevention distinguished on the basis of their position of the target sample along a developmental continuum (see figure 1). The first level- *Universal Preventive Interventions* are those that target the whole population group, for example an entire grade or school population. Because universal programs are positive, proactive, and provided to participants regardless of risk status, their potential for stigmatising participants is minimised. Hence they may be more readily accepted and adopted. The second level- *Selective Preventive Interventions* target individuals or subgroups whose risk (based on biological or social factors) of developing mental disorders is significantly higher than average. For example, given that a clear link has been shown between parental and child anxiety (e.g. Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991), selective prevention may involve the targeting of children and families where one or both parents are known to experience an anxiety disorder (Donovan & Spence, 2000). The third level, *Indicated Preventive Interventions* target individuals who are identified as having minimal but detectable behavioural symptoms or biological markers related to mental disorders, but who do not yet meet diagnostic criteria (Greenburg, Domitrovich & Bumbarger, 1999). For example, employing an intervention with children who report high levels of anxiety on self- report measures.

This chapter will now look at examples of prevention studies conducted in the area of childhood anxiety that have been categorised in terms of their universal, selective, and indicated target samples. A number of points should become apparent during this review. Firstly, the marked absence of empirical research conducted which aims specifically at preventing childhood anxiety. Secondly, of the limited child anxiety prevention studies

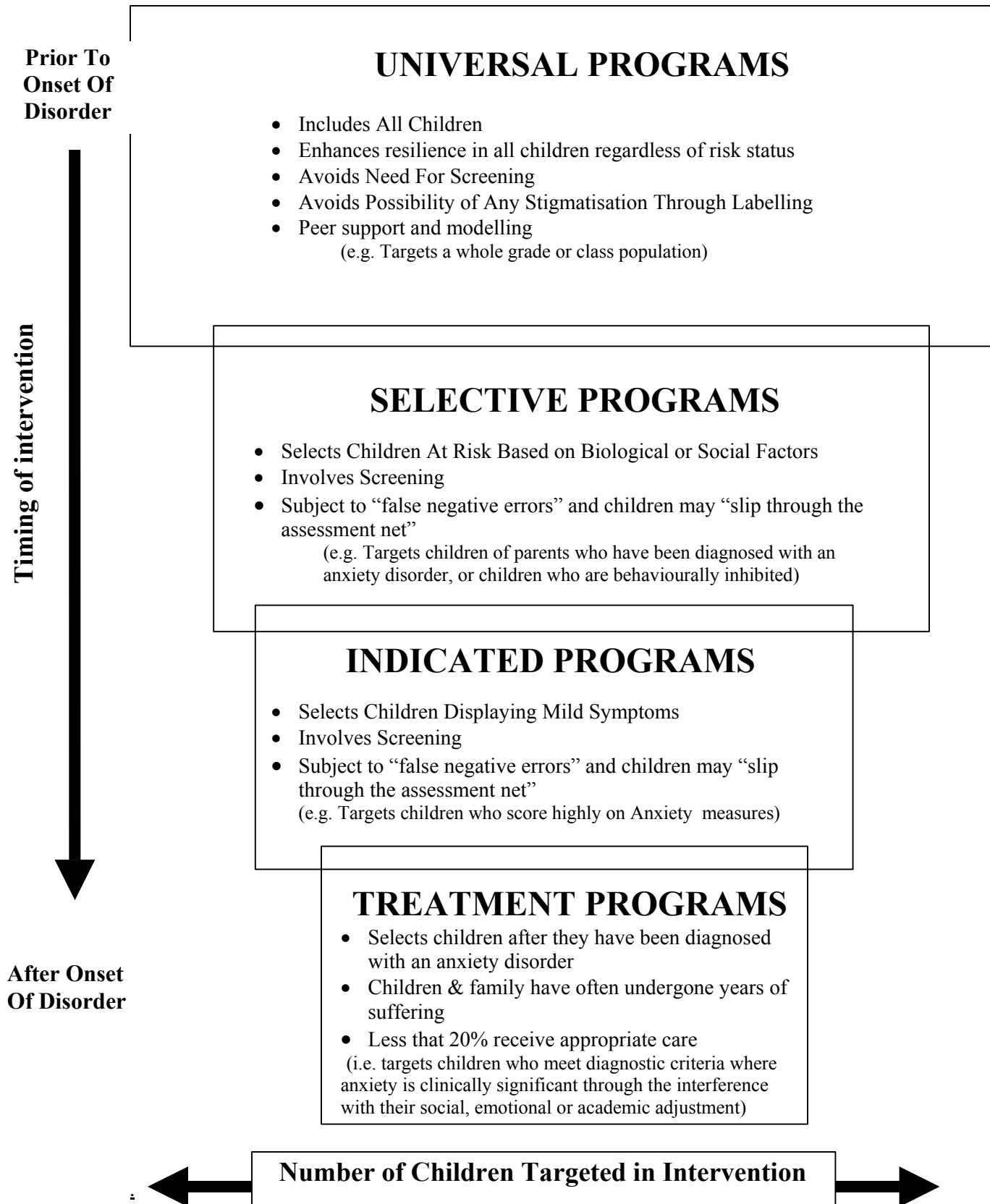


Figure 3.1. The intervention Continuum: Prevention and Treatment of Anxiety Disorders

conducted, selective prevention strategies aimed at the acquisition of personal competencies are the most common type of strategy employed. Finally, most approaches to prevention of anxiety problems to date have focused on the child only, with relatively little attention being paid to parental influences. This is surprising given the considerable evidence implicating factors such as high parental control, parental anxiety and parental reinforcement of avoidance coping strategies in the maintenance of anxiety in children (Barrett et al., 1996; Dadds, Barrett & Rapee, 1996; Krohne & Hock, 1991; Cobham, Dadds & Spence, 1998) and the added benefits to outcome of including parents in anxiety treatment research.

Examples of Selective Prevention Programs

The majority of childhood anxiety research studies to date have focused on treatment interventions, with relatively little effort made to examine ways of preventing such problems. However, of the few prevention studies conducted in the area of childhood anxiety, much of the literature comes from selective prevention studies, in particular, studies that use stressful life events as the risk criteria. Given the strong thrust prevention has within the medical arena, it is not surprising that most attention has been directed towards the prevention of anxiety and fear surrounding medical or dental procedures (e.g., Green, Meilman, Routh, & McIver, 1977; Melamed, Hawes, Heiby & Glick, 1975; Melamed, Seigel & Ridley-Johnson, 1988; Peterson & Shigetomi, 1981).

For example Jay, Elliot, Katz, and Siegal (1987) evaluated the effectiveness of a CBT intervention in reducing levels of anxiety during bone marrow aspirations with 15 children aged between 7 and 13 years. Results revealed that children receiving modelling plus training in coping strategies, demonstrated significantly lower levels of behaviour

distress, lower pain ratings, and lower pulse rates than children who were in the Valium only condition or the attention placebo control group. Similarly, studies conducted with children undergoing a tonsillectomy procedure, found that children who were simultaneously given coping skills training combined with modelling, demonstrated significantly greater improvement in terms of anxiety reduction, than children in the modelling or information alone conditions (Peterson & Shigetomi, 1981).

More recently, researchers have turned their interest into the development of programs aimed at teaching children skills for coping with stressful life events such as parental divorce (e.g., Hightower & Braden, 1991; Pedro-Carroll & Cowen, 1985; Pedro-Carroll, Alpert-Gillis, & Cowen, 1992; Pedro-Carroll, Sutton & Wyman, 1999), one of the most common and serious negative life events confronting children today (Hetherington, Bridges, & Insabella, 1998). In a study conducted by Hightower and Braden (1991), 135 children were involved in a group program which aimed to facilitate the expression of feelings, teach coping skills, enhance positive self and family perceptions, promote understanding of concepts revolving around parental divorce, and encourage the development of social support. Their results revealed reductions in reported levels of anxiety, decreases in reported behavioural problems, decreases in feelings of self-blame and increases in problem solving skills. Moreover, these benefits were maintained at 2-year follow-up. Even at 3 year follow up, half the children who demonstrated gains at post intervention and 2 year follow-up, continued to demonstrate positive gains.

Pedro-Carroll et al. (1992) found similar findings in their study of 188 fourth through sixth grade students from nine schools. Participants were randomly assigned to three

conditions within the schools; (1) Children of Divorce Intervention Program ($N = 57$), non-program divorce controls ($N = 38$) and 93 comparisons from non-divorced families. At post intervention, significant differences were found that favoured the intervention group. Specifically, they reported significantly more positive feelings about their families and improved coping on a child family adjustment measure than divorce controls and intact comparison children. Similarly, the intervention group reported significantly less anxiety and were rated by parents as better adjusted compared to the two comparison groups. One major caveat of the study is that there was no follow-up period making it impossible to determine whether treatment gains were maintained over the long-term.

Other selective preventive programs have focused on stressful events such as siblings of paediatric cancer patients (Bendor, 1990), test taking (Van der Ploeg-Stapert, & Van der Ploeg, 1986), family bereavement (Sandler et al., 1992), and school transition (Felner & Adan, 1988). For example Felner and Adan (1988) developed and evaluated the School Transition Environment Project (STEP), which attempted to make the school transition less overwhelming and stressful to incoming students. This program involved familiarising new students to the school environment, counselling children regarding academic or school adjustment problems, and increasing personal relationships between pupils and staff. Results revealed that children who participated in the program demonstrated greater improvements in academic performance, better school attendance, lower rates of school drop out, and higher levels of self esteem compared to the control group condition. Furthermore, these benefits have been maintained at long-term follow-up and replicated by other research teams working with different populations, and with

children from different social backgrounds (e.g. Soussignan, Koch & Montagner, 1988; Felner et al., 1993)

Despite the success of such empirical research, there are a number of difficulties that selective prevention researchers must overcome. While children at risk of anxiety due to the experience of negative life events are relatively easy to identify, this is not the case when selective prevention procedures are based on biological, or other psycho-social risk factors (Donovan & Spence, 2000). Consequently, if selective prevention procedures are to become commonplace, the development of appropriate measures that are concise, economical, and psychometrically sound must be developed and used to identify those at risk. More specifically, measures must be created that efficiently and adequately identify risk factors such as behavioural inhibition, anxious resistant attachment, parental anxiety and maladaptive parenting style (Donovan & Spence, 2000). Additional concerns centre on the possibility that screening measures are subject to false positive errors and may also overlook a significant proportion of children when they slip through the assessment net (Dumas et al. 2001). Hence, in terms of reducing the incidence of childhood anxiety disorders, this model of prevention does not appear to be the most useful or efficient paradigm at this time.

Examples of Indicated Prevention Programs

More recently, Dadds, Spence, Holland, Barrett, and Laurens (1997) conducted the first controlled prevention trial with a community cohort of anxious children. This project employed a combined indicated and selective approach to the development of anxiety disorders in young people. The aim was to provide a comprehensive coverage of children, including those who were disorder free but showed mild anxious features,

through to children who met diagnostic criteria for an anxiety disorder, but at a low level of severity. A total of 1,786 seven to fourteen year olds were screened for anxiety problems using teacher nominations and children's self-report. After recruitment and diagnostic interviews, 128 children were selected and assigned to either a 10 week school based child and parent focussed psychosocial intervention (the *Coping Koala Manual*; Barrett, Dadds, & Holland, 1994) or to a monitoring group. Immediately following completion of the program, no significant differences were evident between the two groups. However at 6-months follow-up, the results demonstrated not only a significant reduction in existing anxiety, but also a prevention effect, where 58% of children in the monitoring group progressed to a diagnosable disorder, compared to only 16% of the intervention group. Moreover, even at 24-months follow-up these improvements were maintained in the intervention group only (Dadds, Holland, Barrett, Laurens, & Spence, 1999). These results are promising, particularly given the design of the study (randomised trial) and the use of diagnostic classifications as outcome measures. As such, this trial demonstrated that anxiety disorders can be ameliorated and prevented, avoiding the high levels of subjective distress for individuals and their families, and the negative long term consequences in terms of disruption to relationships, schooling, and vocational development. Despite the exiting success of this research, this method of prevention is not without limitations. The shortcomings inherent in indicated approaches will be discussed in more detail shortly.

LaFrenier and Capuano (1997) implemented a six-month intensive home-based indicated prevention program for mothers and preschoolers ($N = 43$). Children receiving high teacher ratings on the anxious-withdrawn scale of the Social Competence and

Behaviour Evaluation were invited to participate in the program. The rationale of the intervention was based on evidence suggesting that insecure attachment is a risk factor for the development of anxiety, dependency, withdrawal, submissiveness and internalising problems in general (Beiderman et al., 1990; 1993; Dadds & Roth, 2001; Kagan et al., 1997; Warren et al., 1997). Furthermore, parents of anxious children have also been shown to be low on contingent reinforcement, and high on negativity and intrusive controlling behaviour (Dadds et al., 1996; Dumas et al., 1995; Boer & Lindhout, 2001; Rapee 1997; Siqueland et al., 1996). This project offered information on child development, including booklets on development, behaviour, security, the body, and parental needs. Additional sessions were provided to address core skills in parenting, as well as any additional personal or parental concerns in order to alleviate stress within the parent-child relationship. Parents were also assisted in building a social support network. At the conclusion of the program, anxious withdrawn preschoolers, as assessed by teachers, showed significant gains in social competence, but reduction in anxious-withdrawn behaviour only approached significance. Parenting stress in the intervention group did not show a significant reduction relative to controls although a subjective positive bias was noted in mothers who participated in the intervention. Mothers in the intervention group reported that their children had positively improved on all measures. Future replications of this study require long-term controlled follow-up in order to determine whether providing a prevention strategy at pre-school age produces a reduction in the number of children who later go on to develop an anxiety disorder. This study provides an important starting point however, for further research.

No further indicated prevention programs for childhood anxiety could be found however studies into the prevention of depression in adolescents are slowly gaining prominence in the literature. For example, Jaycox, Reivich, Gillham & Seligman (1994) conducted an indicated study aimed at preventing the development of depression amongst 10 – 13 year old children exhibiting symptoms of depression. Children were identified “at risk” based on depressive symptoms and their reports of parental conflict. The program, called the *Penn Prevention Program* used CBT techniques to teach children coping strategies to use in the face of negative life events and to enhance mastery and competence across a variety of situations. Specifically the program aims to not only prevent depressive symptoms, but also targets the deficits associated with depression, including lowered academic attainment, poor peer relations, lowered self-esteem and behaviour problems. Sixty-nine children were assigned to CBT treatment groups and compared to 73 children in control groups. Compared to the control groups, children who participated in the prevention program evidenced a reduction in depressive symptoms, and their classroom behaviour was significantly improved at post-test. At two year follow up, the intervention group continued to report significantly lower levels of depression and were less likely than the control group to report moderate or severe depression (Gillham et al., 1995). While the results of this study are impressive, it is important to take a number of factors into account when interpreting these results. Firstly, the quasi-experimental nature of the design limits the generalisability of the findings. Secondly, the response rates to the initial screenings for participants were low and as a result those included in the study may not represent the general sample of

depressed individuals. Another major limitation of the study is its sole reliance on self-report measures of depressive symptoms.

To overcome the limitation of reliance on self report measures, a second major indicated prevention trial with adolescents was reported by Clarke et al. (1995), however this study focused on diagnostic outcome rather than measures of depressive symptomatology. One thousand, six hundred and fifty-two students (mean age 15.5 years) were screened for elevated levels of self-reported depression. Those identified in the screening procedure ($N=471$) were invited to participate in the study. Those who consented ($N=222$) were then administered a diagnostic interview of depression. Of those interviewed, 46 met the criteria for Major Depressive Disorder and or Dysthymia and were excluded. The remaining sample were then randomly assigned to either a 15 session after school cognitive group or a 'usual care' condition. Results from diagnostic interviews showed the incidence of depressive disorder over the 12-month follow-up period, to be significantly lower in the intervention group (25.7%), compared to the control group (14.5%). Self report measures of depression also decreased between in-take and post-treatment in the intervention group but not the control group, however the difference between the two groups at follow-up was not significant. A notable limitation of this study was the encountered difficulties in recruiting and maintaining the attendance of participants, as the program was implemented outside of normal school hours. Moreover, the self-reported levels of depression were significantly lower for those that dropped out compared to those that remained in the study. Thus, those children in the intervention group who demonstrated significantly superior psychological adjustment compared to children in the control group, could potentially manifest a self-selection bias,

being only the most motivated and committed children and families who remained in the study. Thus further research is necessary in order to control for these difficulties.

Given the relatively small number of indicated prevention trials of depression, Hannan, Rapee and Hudson (2000) sought to replicate the positive findings as an independent research team with an Australian sample. Moreover, many of the interventions employed in previous studies were considered too long to conveniently fit into the normal school term in most Australian schools. One hundred and fifty-one 5th and 6th grade students were invited to participate in the research. Thirty-two parents of children consented for their child to complete the screening process, which involved completion of the Children's Depression Inventory (CDI; Kovacs, 1981), the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) and the Child Behaviour Checklist- parent version (CBCL; Achenbach & Edelbrock, 1979). The 22 students who scored seven or more on the CDI were offered a place in the program. This criterion was set with reference to the pre-intervention CDI mean score of approximately 9, recorded in the Gillham et al. (1995) study. The CBT program drew on techniques that had been used in previous programs (e.g. Jaycox et al, 1994) and consisted of eight, weekly, 90- minute sessions. Following the intervention, children reported significant decreases in depressive and anxious symptomatology. Their parents also reported decreases in internalising and externalising behaviours. These changes were maintained over the six-month follow up period. This suggests that an eight session treatment program appears to result in changes in symptoms of depression that are at least as large as those found in the Jaycox et al., (1994) study. Nevertheless, these results must be interpreted within the context of certain study limitations. Specifically, the absence of

a control group, the relatively small sample size and the sole reliance on self-report measures of depressive symptoms. Future research would benefit from the inclusion of larger numbers, diagnostic interviews and some form of control group.

More recently, the efficacy of indicated prevention programs have been further evaluated using an Australian sample. Pattison and Lynd-Stevenson (2001) evaluated the efficacy of the Penn program evaluated in the Jaycox et al (1994) study. Sixty-six children who volunteered to participate in the research aged 9 to 12 years were randomly assigned to the Penn prevention program or to an attention control group. The inclusion of the attention control group sought to control for non-specific factors (e.g. additional adult attention, social contact, membership to a ‘special group’) that may be attributed to the positive outcomes of the intervention. Results revealed no significant improvement on measures of depressive symptoms, anxiety, social skills or cognitive style for the intervention group at post intervention or eight months later during follow-up. One possible explanation for the failure to replicate the positive findings reported by Jaycox et al (1994) concerns the larger sample used in the Jaycox et al study ($N = 143$) compared to the relatively small sample size of 63 in the Pattison and Lynd-Stevenson (2001) study. The large sample employed by Jaycox et al would have resulted in greater statistical power and sensitivity to change in the outcome measures (Tabachnick & Fidell, 2001). A second plausible explanation rests on samples used. Specifically, the Jaycox et al., (1994) study recruited participants who were considered vulnerable to the development of emotional disorders (i.e. due to high levels of parental conflict and elevated levels of depressive symptoms). In contrast, volunteers were used in the Pattison and Lynd-Stevenson (2001) study. Hence, there is a possibility that children who experienced

parental conflict at home or who suffered from elevated levels of depressive symptoms did not volunteer. An additional explanation may be related to the level of integrity or quality of implementation of the Penn prevention program. Pattison & Lynd-Stevenson (2001) made no mention of integrity checks ensuring adherence to treatment protocol, thus whether the same dose or same components of the program was actually administered to the same extent as the original authors of the Penn programs remains unknown. As outlined by Dodge (2001) there is a need for greater attention to both measurement of dosage as well as the quality and fidelity of the intervention delivery, especially as empirically validated prevention programs begin to go to school settings. While this study failed to support the previous research, the findings nevertheless provide avenues for methodological adjustments that could be made in future research.

Limitations of the Indicated Prevention Research

Despite the exciting success of the majority of the indicated prevention research reviewed above it is not without limitations. Specifically, in these prevention trials, the intervention group leaders were clinical psychologists who had been specially trained and employed by the research team. Thus, the prevention trial demonstrated the efficacy of the intervention when managed by a specialist university team and thus can only demonstrate efficacy under ideal staffing conditions. Hence this method of prevention is still a somewhat costly alternative to treating anxiety and depressive disorders and difficulties.

Furthermore inherent in the indicated approach is the process of recruitment based on identifying participants “at risk” based on anxious or depressive symptoms and reports from parent and teachers. The potentially detrimental impact of identifying children ‘at

risk' must be considered. Specifically, a labelling or stigmatising effect may have been created and therefore run contrary to the intention of promoting children's self confidence and esteem. This is an important ethical issue, given that the process of identification may in fact generate increased stress and concern on the part of the targeted individual, over and above the benefits of being involved in such programs.

Notably, the attendance difficulties, identified ethical problems of labelling, and costly implementation of specialised clinical staff, could be substantially reduced if future studies implemented universal prevention programs routinely as part of the school curriculum. Moreover, given that indicated prevention also share the same shortcomings as selective prevention programs (i.e. methods to efficiently and adequately detect risk, concerns regarding assessment instruments and false negatives etc), universal prevention would also overcome these potential limitations. Hence a universal approach appears to be the next logical step in the field of childhood anxiety research. As outlined by Greenburg et al. (2001) the school is the most practical setting for preventive interventions for school age children. Especially given that young people spend close to half their waking hours in school and inevitably the experiences with teachers and peers in that setting will affect emotional well being (Burns & Hickie, 2002). Moreover, given the risk and protective factors involved in the development of anxiety disorders reviewed in chapter two, it would certainly make sense that an ecological, community wide approach would provide the greatest stability for protecting children and families from psychosocial distress.

To follow is a review of universal prevention programs conducted to date. It should become clear from this review, of the limited universal programs conducted in general,

and even more specifically in the area of anxiety disorders in children. Furthermore, the use of trained clinical teams still appears to be the most common form of intervention agents in these studies.

Examples of Universal Prevention Programs

Very little empirical research has examined the efficacy of universal prevention programs for childhood anxiety. In fact, only one universal prevention trial of childhood anxiety could be found in the literature (Barrett & Turner, 2001). This study was conducted following the initiation of the present PhD study by a research group from the same university and incorporates a portion of the data from the present research. While further details of the current PhD study will be discussed in chapters 4 –6 of this thesis, a couple of points regarding this study are noteworthy. Specifically the Barrett and Turner (2001) study reveals that the *Friends for Children* program (Barrett, Lowry-Webster & Turner, 2000a - c) can be successfully delivered to a universal school-based population and integrated into the classroom curriculum when implemented by trained and supervised psychologists. Specifically, the preliminary results indicate that the intervention is successful in reducing symptoms of anxiety within the general population of school-aged children. However, more promising were the trends for the children reporting clinical levels of anxious symptomatology. Compared to a monitoring control condition, greater numbers of “at-risk” children in the psychologist-led conditions (i.e. children scoring above the clinical cut-off on the Spence Children’s Anxiety Scale; Spence, 1997) moved into a healthy score range. These findings advance research conducted by Dadds et al., (1997) by demonstrating that targeting all children in a grade rather than the potentially detrimental impact of identifying and intervening only with

children ‘at risk’, still produces positive effects. Nevertheless, this method of prevention is still a somewhat costly alternative given the high costs associated with specialist-based interventions. While no long term follow up data was reported, these findings encourage the pursuit of further research into universal childhood anxiety prevention programs. Not only in regards to researching the long term effects, but also in the evaluation of the real world effectiveness of such a program when implemented by existing systems of the school setting. These factors will be explored in chapters 4 - 6 of this thesis.

No further universal programs focusing on prevention of childhood anxiety could be found. When extending the search beyond prevention of anxiety, only ten studies looking at the universal prevention of internalising symptomatology could be located. For example Roth (2000) conducted a universal prevention study of internalising disorders in 25 preschools in Australia. The program, called *REACH for Resilience* (Roth, 2000) sought to buffer children emotionally against the development of internalising disorders and was designed for parents and teachers of preschoolers, as they are the most influential people in the lives of 4 to 5 year old children. The word REACH is an acronym where each letter stands for specific skills taught during the psychologist led program; **R**esources, **E**steem, **A**ssets, **C**onfidence and **H**appiness. Although Reach for Resilience is a universal program, it is especially aimed at helping shy withdrawn children to believe in themselves and to discover their strengths, with the help of supportive adults. Seven hundred and thirty-four parents of children between 4 and 6 years of age were invited to participate in the study and were assigned to control groups ($N = 379$ families) or treatment groups ($N = 355$ families) on a school-by-school basis matched on Socio-economic status. Of the 355 families who were invited to attend the

program, 204 (57%) expressed interest. There were 121 (34%) families who actually attended one or more of the six-session program, 45 (13%) parents who attended between one and three sessions, and 76 (21%) attended four or more sessions. Thus, only 28(8%) of the 355 families invited to attend, completed the full six session of the program.

Analyses conducted on the dropouts indicated significant differences between those who remained and those who dropped out of the intervention. Specifically, treatment dropouts received lower overall stress and lower scores on difficult child as measured on the Parental Stress Index- Short Form (Abidin, 1990). This is an important shortcoming of the research, given that the differential dropout rates compromise efforts to compare the two groups for treatment effects. A notable strength of this study was the measures of treatment integrity performed on 20% of the sessions using a checklist of key points and exercises, which followed the treatment manual. The mean adherence to the manual was 96% with a range of 83% to 100%.

Overall, the results from this study indicated that there were no treatment effects reported by parents at post intervention or follow-up. Teacher reports suggest a slight treatment effect at post intervention, with the control group showing more anxious-withdrawn and angry-aggressive behaviours, and the 0-3 and 4-6 session group attendees showing significantly less of these behaviours. However, by follow-up there were no longer significant group differences. There are a number of possible explanations for the these results which include; (a) the intervention had no effect; (b) the brevity of the program contributed to lack of intervention effects; (c) sampling and self-selection of participants makes it impossible to interpret the results; or (c) the more highly stressed group self-selected into the program and moved into the normal range as a result of

attendance into the program. While further research is necessary, it appears that one way to overcome the self-selection and dropout limitations of this study would be to conduct universal programs as part of the school curriculum. Moreover, perhaps interventions targeting children as well as parents may be more useful given that many parents are often overcommitted with work and social activities preventing their active participation in all sessions. Thus, if all children are targeted, at the very least, they will be learning important strategies even if their parents cannot commit to all sessions. Furthermore, if parents received handouts from all sessions, this may further overcome problems of low parent attendance, as they would still be provided an opportunity to learn important child management skills.

Dubow, Schmidt, McBride, Edwards, and Merk (1993) conducted a 13-session universal prevention intervention, called the *"I CAN DO" program* within whole classroom settings with fourth grade children. Implemented by trained clinicians, the sessions focussed on teaching students general coping skills such as problem solving, how to seek and enlist social support, and strategies to increase positive affect in uncontrollable situations. Results revealed that the program had no effect in changing the children's social support size or in improving their knowledge and attitude towards negative events. However, compared to children in the control group, the intervention group demonstrated significantly higher levels of self-efficacy in ability to cope with stressors and a greater problem solving ability. At follow-up, children in the intervention group evidenced no change in knowledge and attitudes, social support size or problem solving ability however, participants continued to improve in their self-efficacy scores. A major limitation of this study was a lack of control group at 6-month follow-up. A further

limitation was that despite being a program aimed at increasing children's coping with stress, no measures of stress or anxiety were included in the study. Furthermore, a longer follow-up period would be useful in order to examine the durability of effects after the intervention. Clearly, replications of this study, which include a longer follow-up period, measures of anxiety and presence of a control group for follow-up intervals, are needed.

Klingman and Hochdorf (1993) reported on a 12-session CBT oriented school-based preventive intervention that was designed to improve student's ability to cope with distress, loneliness, hopelessness, coping skills and to reduce overall rates of self-harm. Participants consisted of six classes of students ($N = 237$) aged 12 – 13 years who were randomly assigned to either the intervention or a control condition. Experienced school counsellors or psychologists implemented the intervention, which consisted of three phases; an educational/conceptual phase, a skills acquisition phase, and a rehearsal and application phase. Results indicated that overall the program had a positive effect on attitudes, emotions, knowledge and awareness of distress coping skills. No improvement was found in scores for the loneliness scale, and boys but not girls showed a significant score reduction on a measure of self-harm. In addition, participants were positive in their evaluation of the program providing social validity data on its need and usefulness. A notable limitation of the study was the neglect to administer some of the instruments at pre-test to the control group due to concern that exposure to these instruments would "disturb" students. Additionally, no follow-up period was included as a means to examine whether the positive effects were maintained over time.

Orbach and Bar-Joseph (1993) conducted a seven session universal study aimed at preventing suicide via the enhancement of coping strategies with 393 adolescents from

six schools in Israel. Participants were randomly assigned to experimental ($N = 215$) and control groups ($N = 178$). School counsellors or psychologists delivered the intervention in weekly 2-hour sessions. Students completed pre- and post-intervention questionnaires of suicidal tendencies, hopelessness, and coping ability. Some gender differences, and school differences were observed, however, in comparison to a control group, the intervention was effective in reducing students' suicidal feelings, and in increasing ability to cope with problems. Despite the effectiveness of this program being assessed only at post-intervention, the results are promising and indicate the potential utility of universal preventive interventions. As yet there has been no replication of the program, hence it is unclear what impact the cultural aspects of the program may have on the generalisability of the results.

Cunningham et al., (1999) conducted a universal school-based prevention program for adolescent depression with 10 – 12 year olds. The intervention was based on the work by Seligman et al (1995) and consisted of six 1-hour weekly sessions implemented by trained psychologists. Results demonstrated significant gains in optimism and self-efficacy from pre to post test alongside significant reduction in the use of non-productive coping strategies. While these results are impressive, a major caveat of the study was the absence of a control group. Furthermore, there was no long-term follow-up, thus whether these improvements were maintained over time is unknown.

Recently the *Resourceful Adolescent Program* (RAP; Shochet, Holland & Whitefield, 1997) targeting adolescents was also evaluated as a universal prevention program for depression (Shochet et al., 2001). The RAP program is an 11-week intervention designed to be implemented during a 50-minute school period with groups of 8 – 10 adolescents.

The program includes traditional CBT interventions and strategies derived from self-psychology and interpersonal perspectives. In order to evaluate its universal application, the RAP program was offered to all year nine students of the school as part of the school curriculum. A control group consisted of students in a similar school who remained within the usual school curriculum. University based group leaders who were selected, trained and supervised by the research team, implemented the program. A major benefit of the universal application during school hours was the finding of high attendance rates (all students attending at least 9 of the 11 sessions) and low attrition (only 2% of students did not complete the program). Results revealed that adolescents who participated in the RAP program showed significant reductions in levels of depression and hopelessness between pre and post intervention, which was also maintained at follow-up, compared to the control group. Analyses of clinical significance suggested the benefits of the program were most evident for those adolescents who began with high or moderate elevations of depressive symptoms. Students were classified as healthy, sub-clinical or clinical on the basis of their pre-intervention levels of depression and hopelessness. Specifically, students were classified as clinical if they scored on or above the clinical cut-off score on both measures; sub-clinical if they scored above average on both measures, but not in the clinical range on both; and healthy if they scored in the normal range on at least one measure, and not in the clinical range on either measure. At post intervention and follow-up, lower rates of sub-clinical and clinical categories and higher rates of the healthy category were found in the RAP group relative to the comparison group. Tracking of clinical status changes from pre-intervention to post-intervention and follow-up, indicated the results were impressive. Of the students showing healthy status at pre-intervention,

10.1% in the comparison group moved into the sub-clinical or clinical categories compared to 1.2% of the RAP group. This difference was clinically significant. For those students classified as sub-clinical at pre-intervention, no students from the RAP group moved into the clinical range at post-intervention or follow-up. In contrast, 10.5% of the comparison group had moved into the clinical range at post intervention, increasing to 17.6% at follow-up. Differences between the intervention and comparison groups also existed in the proportion of students moving from the sub-clinical to healthy range. Seventy-one percent of the sub-clinical students from the RAP group moved into the healthy range at post intervention and 75% at follow-up. In comparison, 32% of the sub-clinical students from the comparison group moved into the healthy range at post intervention and 41% at follow-up. Hence this study provides evidence for the efficacy of a school-based universal prevention program designed to prevent depression in adolescence, overcoming recruitment and attrition problems found in previous studies.

More recently, Quayle, Dziurawiec, Roberts, Kane, and Ebsworthy (2001) conducted a randomised, controlled trial with 47 girls in grade seven prior to making their transition to high school. Implemented by trained post-graduate clinical psychology students, the study sought to examine the effects of an Optimism and lifeskills program (adapted from the Penn prevention program; Jaycox et al., 1994) on depressive and loneliness symptoms, attributional style for negative events, and self worth. Compared to the control group, students in the intervention program reported fewer depressive symptoms and greater self-worth at 6-month follow-up. However, no significant differences between groups were found in levels of depressive symptoms, attribution style or loneliness immediately following the intervention. This putative delay in intervention effects was

consistent with findings of Dadds et al (1997), suggesting that a period of time may be required for concepts and skills to be integrated and adopted into participants' daily lives. As a pilot study for a large-scale prevention program, this study highlights the usefulness of targeting this important life transition period. Moreover, the significant effects evident after a relative small number of sessions (i.e. 8 x 80 minute weekly sessions) is notable. However, a number of factors must be taken into consideration when considering these results. Firstly, the study consisted of a relatively small sample size and suffered from high attrition and low attendance rates (mean attendance at sessions, $X = 3.43$, $SD = 1.68$) greatly reducing the power for statistical analyses and external validity. Secondly, the sample comprised of females only, thus limiting the generalisability of the results. Finally, there was an absence of parent or teacher reports. It is generally recommended that multiple informant be used, especially as there appears to be poor parent-child agreement on the reporting of internalising symptoms (DiBartolo, Albano, Barlow, & Heimberg, 1998). Further, assessment by multiple informants also provides measures of the generalisation of skills to the home and school environment.

While the Shochet et al. (2001) and Quayle et al., (2001) study alongside the other prevention studies reviewed above provides a good argument for a universal approach to prevention, these prevention trials demonstrated the efficacy of such interventions when managed by a specialist university team and thus can only demonstrate efficacy under ideal staffing conditions. Thus, there may well be a difference in the impact of a program run in the "real-world" compared to more ideal conditions, that is, between 'efficacy' and 'effectiveness' studies. Moreover, disseminating prevention programs on a nation-wide basis can be expected to raise a number of problems. First, as mentioned above, there is

little evidence that the programs will be effective when run by school professionals without the advantage of regular supervision and support of the university research team. The absence of supervision and support may reduce program integrity and the effectiveness of the program. Second, resources are lacking in many schools for programs to be offered to all students on a universal basis. Furthermore, this method of using specialist teams in prevention is still a somewhat costly alternative to treating anxiety disorders and other internalising difficulties.

Universal Prevention Programs Implemented by Trained Teachers

To date, only a limited number of these universal prevention programs have been implemented with trained teachers to examine the real world effectiveness of these programs. Of those that have been implemented, the results have been mixed. For example, Clarke et al. (1993) reported on the results of two school-based primary (or universal) preventive interventions for adolescent depressive symptomatology delivered by classroom teachers after receiving two hours of training. In the first study, 25 classes of adolescents ($N = 622$, aged 14 – 16 years) were randomly assigned to either an intervention or control condition. The intervention consisted of a three session educational intervention examining symptoms, causes, and treatment of depression. While the intervention provided no specific skills, participants were encouraged to engage in regular pleasant activities on a daily basis. Results revealed that the intervention was associated with a short-term reduction in extreme-scoring cases of depressive symptoms among boys, but not girls, when compared to the control condition. This effect however, was not sustained over a 12-week follow-up period.

In an effort to increase the effectiveness of the intervention, Clarke et al. (1993) adapted the intervention to include five sessions of specific behavioural skills training. Once again teachers implemented the intervention following curriculum-based training. In this second study, 14 classes of adolescents ($N = 380$, aged 14 – 16 years) were randomly assigned to either an intervention or monitoring control condition. Results again suggested the intervention had no effect, compared with the control condition, on depression knowledge, attitudes toward treatment, or treatment seeking. Clarke et al (1993) concluded that while educational interventions alone are probably inadequate to effect significant change, the skills intervention may have been too brief to provide participants with enough time to fully comprehend and integrate the information that was presented. There are a number of additional factors, which could account for the discrepancies observed between the Clarke et al. (1993) study, and the other universal interventions described earlier. Firstly, there were notable differences in the length, and the content of the interventions. Shochet et al., (2001), Klingman and Hochdorf (1993), and Orbach and Bar-Joseph (1993) offered more comprehensive interventions (total duration 12 – 14 hours), with both an educational component and a component specifically focused upon application of the skills taught. Secondly, experienced and specifically trained school counsellors or psychologists delivered the interventions described by Shocket et al (1999) Klingman and Hochdorf (1993) and Orbach and Bar-Joseph (1993). Clarke et al. (1993) provided teachers with a minimum curriculum-based training, which may not have been sufficient for teachers to adequately lead a psychosocial intervention. Furthermore in the absence of fidelity data, significant results may reflect either the effectiveness of the intervention or the influence of unknown

variables added to that intervention. Likewise non-significant results may show that the intervention was ineffective, that it was not delivered as designed, or that it changed in unspecified ways in the course of the study.

More recently, Harnett (2001) conducted a systematic replication of the psychologist delivered study reported by Shochet et al., (2001) in attempt to overcome many of these identified limitations associated with teacher delivered interventions. Specifically, Harnett aimed to evaluate the *Resourceful Adolescent Program* (RAP; Shochet, Holland & Whitefield, 1997), which had previously been evaluated within a school setting by a university based research team, under real world conditions with trained school personnel. Teachers and guidance officers were provided with a full day training workshop on the RAP program. A notable strength of this study was the focus on assessing acceptable levels of teacher knowledge and acquisition of skills prior to implementation of the program. Specifically, Harnett assessed school personnel's knowledge pre and post the training workshop. Results demonstrated that the RAP training program enhanced the knowledge level of school personnel compared to two comparison groups (1) psychologists and (2) psychologists expert in the area of adolescent depression and the RAP program strategies. It was expected that trained school staff would show levels similar to non-experts prior to training and levels approaching that of experts following training. This hypothesis was largely supported.

Following this, trained teachers and guidance officers implemented the program with 96 female students from two schools aged 12-16 years. A comparison group of 116 girls acted as a usual care comparison group. Looking at the sample as a whole, no significant differences were found between the two groups in their levels of risk or

resilience at post or 10-month assessment. The impact of the intervention was also assessed in terms of its clinical significance. This was assessed by looking at changes in the clinical status (Healthy or clinical) over the three assessment times for the two groups. There was limited evidence of a prevention effect. Specifically, the intervention group showed a non-significant trend towards fewer cases classified as healthy at pre-intervention moving into the clinical range at post-intervention and follow-up, compared with the comparison group. Evidence of a health promotion effect was investigated by looking at the percentage of students moving from clinical status at pre-intervention to healthy status at post intervention and follow-up. Results revealed that the percentage of pre-intervention clinical students classified as healthy was higher for the intervention group (36.4%) compared with the comparison group (21.9%). However, this difference also failed to reach significance. While this result is not significant, the finding is consistent with the study of Shochet et al (2001) who found that the major beneficiaries of their study were those students who showed elevated symptoms of depression and hopelessness. In this study, 75% of the sub-clinical adolescents from the intervention group moved into the healthy range at follow-up compared to 41.2% of the comparison group.

The failure to find a statistically significant intervention effects requires explanation. This is particularly important in the light of evidence that guidance officers maintained the integrity of the program in its implementation. One explanation offered by Harnett concerns the provision of supervision and support for group leaders. The provision of supervision had been identified as an important factor in differentiating efficacy and effectiveness studies (Chambless & Hollon, 1998). Furthermore, despite

good levels of integrity and participant involvement, measures of other process variables were not taken. Consequently, although trained school personnel may be skilled at keeping to a lesson plan or following a structured intervention manual, they may be less skilled at responding to critical interpersonal and group process variables crucial in bringing about change. Interestingly no mention of specific training in these process variables during the workshop was mentioned. Thus, it may be that the effectiveness of these interventions with teachers may rest on intensive training on such variables as reinforcement, modelling, normalisation, and group process skills. A further methodological issue that may limit the conclusions that can be drawn is the non-representativeness of the sample selected. Specifically, the sample was drawn from schools comprised of females only. Moreover, as identified in the studies conducted by Osbach and Bar-Joseph (1993) and Klingman & Hoddort (1993) more benefits were observed for male participants than their female counterparts. This raises questions about gender effects, an issue largely ignored in the empirical research conducted to date. Obviously further research and replication is needed before definitive conclusions can be drawn.

Chapter Summary

The prevention of anxiety during childhood had been identified as an essential priority for research attention. To date, this field has been characterised by three logically sequential stages in the general development of child anxiety prevention programs. First, prospective, descriptive and laboratory studies have shaped knowledge of how anxiety develops in children across time. Second, this knowledge has been applied in the creation of novel treatment intervention plans, which have been tested in

relatively ideal circumstances called efficacy trials. These empirical studies have paved the way for prevention trials by identifying risk and protective factors that can be successfully modified during treatment. Consequently, the past decade has brought to fruition studies that demonstrate the potential of preventive interventions in reducing internalising symptoms during childhood. However, given the paucity of research into prevention, the above discussion also highlights the infancy of our empirical inquest into this area. The majority of the studies investigating anxiety prevention have tended to be selective and more recently indicated in approach, with universal prevention lagging behind.

As discussed, the potential for universal prevention to reduce the prevalence and personal and economic suffering while limiting the potential of stigmatisation of participants is noteworthy. Such programs may even prevent psychological disorders from continuing or recurring in adulthood. Finally, preventive interventions that have been shown to be efficacious under ideal circumstances are beginning to be tested under more natural circumstances of the “real world” ecology called ‘effectiveness studies (e.g. Harnett, 2001). It is clear from the literature reviewed here however, that these effectiveness studies are still in their infancy, and in terms of childhood anxiety markedly absent.

In short, important progress has been made in research on the prevention of disorders in school age children. Many of the programs reviewed have reduced symptoms of psychological disorders and / or the proposed risk factors for these disorders. Despite this progress however, there are major limitations to the existing research and findings. The prevention trial presented in chapter six of this thesis attempts

to address some of the gaps identified in the literature by examining the first universal prevention program of anxiety disorders in children implemented by trained schoolteachers. However, before this research is presented, chapter four seeks to provide an overview of where the childhood anxiety literature is at, followed by an outline of the project's methodology and how this aims to overcome the limitations identified in the literature.

CHAPTER FOUR:

General Method: Summary, Aims and Hypotheses

This chapter aims to provide an outline of the current status of the childhood anxiety literature, and identify what research needs to be done to overcome the existing gaps in knowledge. Accordingly, a summary of the preceding literature on phenomenology, prevalence, aetiology, treatment and prevention of childhood anxiety is presented. Subsequently, some key areas for future research are identified as an introduction to how the present studies may contribute to current knowledge. Preceding the empirical studies to be presented in chapters 5 and 6, the aims and hypotheses of each study are outlined, and the general recruitment process for these studies is presented.

Summary of Major Advances in the Childhood Anxiety Literature

- In regards to the prevalence studies reviewed, it appears that anxiety disorders are the most prevalent among disorders in children and adolescents. Furthermore, there is a plethora of evidence to suggest that anxiety disorder marks a pathway to serious and chronic disability. These findings highlight the importance of both research and clinical attention to this domain of psychopathology.
- The literature reviewed shows that anxiety disorders in children start early in life. In population-based studies on the initial onset age of psychiatric disorders, specific phobia had the earliest onset of all disorders and also emerged earlier than other anxiety disorders (Giaconia et al., 1994; Last et al., 1992). Among clinic referred children, as well as children at risk, anxiety disorders have likewise been found to start earlier than other disorders, reconfirming data from non-clinical community based investigations. Notably, in a longitudinal study of clinic-referred depressed

children, when comorbid anxiety disorders were present, their onset typically preceded the onset of major depression (Kovacs et al., 1989).

- Research also demonstrates the high rates of comorbidity of anxiety with other disorders. In clinical populations, the most common comorbidity is another anxiety disorder (Kendall & Brady, 1995), followed closely with depression during the period of adolescence (Francis et al., 1992; Last, Hersen, et al., 1987; Strauss & Last, 1993). In community populations, the most common pattern of comorbidity is that of anxiety and depression (Essau, 2000; Lewinsohn et al., 1993).
- While the taxonomy of the relationship between anxiety and depression is still a major focus of current research, if anxiety in childhood is the first expression of psychopathology, it is crucial to identify children at risk for the development of anxiety difficulties and intervene early to prevent suffering experienced by children, families, and communities at large. Clearly, the case for early identification and prevention is highlighted as critical for this period of childhood and research and clinicians may be well advised to focus on late childhood targeting resources and preventive interventions to this age group most at risk. The prevention study described later in chapter 6 consequently focused on middle childhood as the optimum time for a prevention strategy.
- A number of researchers (e.g., Holden & Black, 1999; Reiss & Price, 1996; Spence, 1996a) have argued that in order to develop effective prevention programs, two elements must be present. Specifically, a solid knowledge base concerning factors that cause the disorder, and secondly effective methods that have been empirically shown in efficacy trials to modify these variables. In terms of child anxiety research,

these requirements are adequately in place. Firstly, over the past twenty years our knowledge of factors that place children at risk of developing anxiety problems have increased significantly. The literature reviewed highlighted the involvement of a complex interaction between biological, environmental, and psychological factors. Implicated factors include genetic and temperamental factors, parenting style and behaviours, traumatic life events, cognitive errors, and selective attentional processes.

- Secondly, we now have intervention programs that have been shown to reduce anxiety difficulties when implemented with both individuals and groups of children with established anxiety disorders with benefits maintained at long-term follow-up (Barrett, Dadds, & Rapee, 1996; Barrett, 1998; Cobham, Dadds, & Spence, 1998; Dadds et al., 1997; Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; Last et al., 1998; Shortt, Barrett, & Fox, 2001; Silverman et al., 1999). Furthermore, the evidence from these studies also suggests that the efficacy of CBT treatment can be enhanced by involving parents (Barrett, Dadds & Rapee, 1996; Cobham, Dadds and Spence, 1998). Hence, we are equipped with a number of child, parent, and environmental strategies for preventing childhood anxiety.
- Three models of prevention have been proposed: indicated, selective and universal. As demonstrated by the literature reviewed in chapter three, of the limited anxiety prevention research conducted to date, the majority of the research has been conducted using selective models of prevention and more recently indicated approaches. The results overall have been positive indicating that anxiety can be

successfully prevented and ameliorated. However a number of key issues have become evident from indicated and selective research:

1. Inherent in the design of indicated and selective prevention are the ethical issues raised due to the identification of children “at risk” which may produce detrimental labelling effects by stigmatising individuals as different and or/inferior.
 2. Additional concerns centre on the possibility that screening measures are subject to false negative errors and may also overlook a significant proportion of children when they slip through the assessment net (Dumas et al., 2001; Donovan & Spence, 2000).
- Consequently universal prevention programs, which target all children, attempts to overcome this limitation. Further advantages of universal prevention rests with the potential for a single preventive intervention to reduce or prevent multiple problems given the many shared and overlapping risk factors and significant degree of comorbidity (Greenberg et al., 2001).
 - To date only one universal anxiety prevention trial has been conducted (Barrett & Turner, 2001), and only a handful more that focus specifically on internalising disorders. These prevention trials demonstrated the efficacy of such interventions when managed by a specialist university teams and thus can only demonstrate efficacy under ideal staffing conditions. Thus there may well be a difference in the impact of a program run in the “real-world” compared to more ideal conditions, that is, between ‘efficacy’ and ‘effectiveness’ studies. Of the universal trials actually conducted by school staff, the majority of these have focused on internalising problems other than anxiety, and results have been mixed. These appear to lie with a

number of methodological shortcomings, alongside their general lack of replication.

These are summarised below:

- A number of the studies reviewed did not include a control group, or there was an absence of control groups at the follow-up period. This greatly limits the conclusions that can be drawn, especially in terms of the long-term maintenance of gains.
- The majority of studies reviewed had a heavy reliance on self-report measures of anxiety symptoms rather than actual disorders as identified through diagnostic interviews. Thus, we do not know whether reductions in symptoms or proposed risk factors translate into the prevention of psychological disorders over time. For example the studies of Jaycox et al (1994) and Harnett (2001) is fairly typical in their reliance on measures of symptoms rather than clinical diagnoses. The failure to assess clinical diagnosis is often due to budget constraints, as it is expensive to conduct clinical interviews over lengthy follow up periods. However, clearly the lack of assessment of psychological disorders in most investigations limits the conclusions that can be drawn about the prevention of disorders (Gillham, Shatte, & Reivich, 2001).
- Other Limitations include the absence of follow-up periods, or the need for extended follow-up beyond the 6-month period, as a means to examine whether the positive effects were maintained over time or whether interventions do indeed demonstrate a preventive effect.

- With few exceptions there has been little exploration of how the quality of implementation affects outcomes. There is a need for greater attention to both measurement of dosage as well as the quality of fidelity of the intervention delivery, especially as empirically validated prevention programs begin to be implemented by school personnel.
- There is a general lack of involvement of parents in these preventive interventions despite evidence suggesting the positive impact on treatment outcomes through the inclusion of a family component (Barrett et al., 1996; Rapee, 1997, Cobham et al., 1998; Shortt et al., 2000)
- Other limitations include, unrepresentative samples of the normal population with reduce the generalisability of findings, and insufficient training, supervision and support of staff implementing such programs.

The Proposed PhD Study as a Means to Overcome Gaps and Limitations in the Literature

To date there has been no implementation of a universal anxiety prevention trial where programs are implemented to all children routinely as part of the school syllabus by existing school staff. It is anticipated that all children can benefit from such skills building programs, which accordingly, might bolster intervention effects through the general enhancement of interpersonal functioning in a school community. Furthermore, it is argued that schools are second only to families in shaping children's development (Cowen et al., 1996 cited in Evans, 1999), consequently schools provide invaluable access to students and families in need of mental health services. Hence, a fundamental research question remains – ‘ how do universal prevention programs work when managed

and implemented by pre-existing systems of a school, as opposed to specialised mental health professions?’ The result of this question is a fundamental community health issue.

As such, the current PhD study seeks to extend research into the prevention of anxiety disorders by implementing and assessing a universal intervention involving school teachers already in place in the community setting. Clearly previous research has provided a pathway for the implementation of universal anxiety prevention programs. Our knowledge of aetiological factors involving both risk and protective factors, the availability of empirically supported treatment strategies, and initial prevention efforts and effects demonstrated when implemented by trained clinicians, endows us with the necessary tools for effectively preventing childhood anxiety disorders. The need for prevention is obvious, and by involving and training teachers intensively in the skills and techniques surrounding the prevention of anxiety, significant advances in our knowledge of how best to design and implement programs for young people with anxiety disorders and other mental health problems may be made.

If the implementation of universal prevention programs employed by schoolteachers is found to be effective with primary children, this could allow future prevention programs to reach a greater number of students over a shorter period of time. Consequently, this has the potential to be a more cost-effective alternative to reducing the overall incidence of anxiety disorders within the community. In light of this, an ecologically valid model also has the potential to reach individuals in geographically isolated communities. Rural populations experience many stressful life events both common to other populations (i.e. deaths, accidents, financial problems, relationship conflict) and unique stressors that rarely challenge their urban counterparts (i.e. scarcity

of resources and services, reliance on weather factors for livelihood, declining populations, physical proximity issues) (Day, Kane & Roberts, 2000). What is more, remote communities consistently struggle to maintain adequate general health care services, let alone interventions targeting childhood anxiety difficulties. In addition, the overall lack of trained mental health professionals in rural communities is a matter that affects both the availability of services and the quality of care provided.

Additionally, a universal prevention program delivered by classroom teachers could overcome many of the problems encountered in clinical practice with the high levels of no shows, dropouts, lengthy waiting lists, and reaching those in need, given that all children in a grade would be targeted. Although the combined approach of the universal train-the-trainer model cannot completely ameliorate the need for direct professional intervention, this service-delivery approach may reduce the demand and cost of anxiety problems that school staff may effectively manage through curriculum-based programs.

The period of middle childhood appears to be an especially advantageous time for anxiety prevention and early intervention. Developmentally, this is the time when anxiety disorders begin to emerge (Albano, Chorpita, & Barlow, 1996). Consequently, the current research is targeted towards children aged 10-13 years of age.

This study also seeks to explore the effectiveness of the anxiety prevention program on levels of depression. The existence of a strong relationship between anxiety and depression has been widely demonstrated (Cole et al., 1998; Katon & Roy Byrne, 1991). Orvaschel, Lewinsohn and Seeley (1995) noted that nearly two thirds (64.5%) of adolescents with a primary diagnosis of anxiety disorder later developed a second diagnosis of major depressive disorder. A number of researchers have suggested that

anxiety and depression share a common underlying diathesis (Clark, 1989) or as sharing overlapping symptomatology which makes them difficult to distinguish (Katon & Roy-Byrne, 1991). Others argue that depression develops secondary to anxiety as a result of the increasing difficulty of failing to cope with the personal and social problems associated with their anxiety disorder (Cole et al., 1998). Thus it could be argued that a change in the level of anxiety from pre to post intervention may also result in a change in the level of reported depression. Moreover, given the many overlapping risk factors associated with both anxiety and depression, the teaching of child and parent coping skills may therefore be useful in the prevention of anxiety and depression both within and between subjects. In view of the high comorbidity between anxiety and depression in children, and the identified risk factor of anxiety for the development of depression, it would appear somewhat artificial to focus solely on anxiety. Moreover, if a single program can reduce levels of both anxiety and depression, the cost effectiveness of employing such an intervention is further strengthened.

The prevention program is designed to be implemented within a transactional-ecological framework (Bronfenbrenner, 1979; Felner & Felner, 1989), by inviting parents and teachers to participate and build upon family and school resources. This places the child's behaviour within two influential contexts, as well as emphasizing the interactional process of development. Numerous prevention scientists are acutely aware of the gap between research and practice, a gap that imposes severe limitations on the dissemination of effective interventions to meet the needs of populations at risk. Thus, one way to bridge this gap is to demonstrate that carefully designed, user friendly interventions can be effectively disseminated and to build dissemination into the intervention plan (Dumas

et al., 2001). However, this cannot be done without first establishing that a particular program can be successfully implemented with a high degree of fidelity. Hence the study discussed in chapter 5 also takes specific measures of program fidelity.

Research explicitly evaluating the effectiveness of prevention programs with anxious children is in its infancy. The current research aims to evaluate an ecological approach to the prevention of anxiety disorders in children and as such consists of two studies investigating three separate issues (see table 2);

STUDY ONE: (Issue 1): Examine PROXIMAL Effects: To firstly train school teachers (the change agents) in the skills and techniques associated with the prevention of anxiety, and assess whether such training produces change in these change agents;

STUDY ONE (Issue 2): Examine INTERMEDIATE Effects: To assess whether these change agents, after completing the training course, can effectively implement the prevention program within their individual school setting as per protocol;

STUDY TWO (Issue 3): Examine DISTAL Effects: To evaluate the outcomes of the train-the-trainer model. Specifically, did the children involved in the program benefit from being members of the group in terms of reductions in anxiety problems, and reductions in levels of reported depression, as assessed by self report, parent report and diagnostic interviews?

As such, this study will implement the *FRIENDS program* (Barrett, Lowry-Webster & Homes, 1999), which historically began as a treatment program called the *Coping Cat* (Kendall, 1994), was then modified to incorporate a family component (*Coping Koala*: Barrett, 1991) and also formed the foundation of the prevention program evaluated in the Dadds et al., (1997) selective prevention intervention study, which was

found to be effective in reducing levels of anxiety and in producing a prevention effect.

The *FRIENDS* program will be evaluated for its effectiveness against a monitoring condition group. All group members involved in the project will be assessed with the same package at pre and post intervention, and 12- month follow-up.

Table 4.1.

An Evaluation Model of the Proposed Universal Prevention Trial of Anxiety Disorders in Childhood

Effects	Participants	Design Aims	Measures
Proximal (STUDY 1)	School Teachers	To assess the immediate effects of training on knowledge and self-efficacy of school staff. (pre-post comparisons).	-Knowledge of anxiety disorders and their risk factors -Knowledge of the principles taught in the FRIENDS prevention program -Perceived confidence and efficacy in implementing the FRIENDS program
Intermediate (STUDY 1)	School staff (Teachers)	To assess integrity of implementation and quality of group process. (Descriptive statistics)	-Integrity of implementation of FRIENDS sessions using self-rated checklists and independent observers
Distal (STUDY 2)	Children	To assess outcome effects for children (Pre-post & 12 mth comparisons)	-General adjustment (SCAS, CDI CBCL, RCMAS) -Diagnostic Interviews -Social validity and acceptability of the program by children, parents and teachers

Hypotheses:

Aims and Hypotheses for STUDY 1: Issue One: Proximal effects.

The aim of this study is to assess if through training, teachers obtain the acceptable level of knowledge and self-efficacy needed to implement the *FRIENDS* program into their setting. That is, to evaluate whether training had an impact on professional skill development and investigate whether the validity of the prevention program is maintained when disseminated in real world settings by teachers. Hence, it is hypothesised that:

- The school staff who complete the FRIENDS training workshop will show an increase in knowledge and understanding of the principles of anxiety prevention from pre- to post- test.
- A group comprised of teachers will serve as a normative comparison control group, as such it is hypothesised that there will be no significant differences between both teacher groups at pre-test, however at post test teachers who participate in the FRIENDS training workshop will evidence higher levels of knowledge than teachers in the control group.
- A group comprised of experts in the implementation of the FRIENDS anxiety program will also be used as an expert-control group, as such, it is hypothesised that there will be significant differences between groups on knowledge and self confidence at pre-test, with the expert scoring higher on both measures than the teacher workshop group.
- It is expected that there will be significant increase in scores on both these measures from pre to post-test for the teachers in the workshop condition only.

Aims and Hypotheses for STUDY 1: Issue Two: Intermediate Effects:

The aim is to gather quantitative and qualitative information about the integrity of implementation of FRIENDS program for the prevention of anxiety when implemented by school staff, and as such no directional hypotheses are made.

Aims and Hypotheses for STUDY 2: Issue Three: Distal Effects

The aim of this study is to evaluate the effectiveness of the FRIENDS program (Barrett, Lowry-Webster, & Holmes, 1998 a-f) a school and family based group cognitive behavioural program. This study also seeks to improve on previous studies examining

outcomes from CBT based programs by investigating the acceptability of the treatment from the perspective of parents, teachers and children, involved.

Given the efficacy of group based psychosocial interventions for remediating childhood anxiety (e.g. Barrett, 1998; Short, Barrett, Dadds & Fox, 2001; Cobham, Dadds, & Spence, 1998; Silverman et al., 1999) and the demonstrated effectiveness of the school based- psychologist implemented anxiety prevention program (Dadds et al., 1997), it is hypothesised that;

- Participants involved in the prevention program will show lower rates of anxiety symptoms and disorders, and lower symptoms of depression and depressive disorders, compared to the waitlist control group at post test, and 12 month follow-up as rated by self reports, parent reports and diagnostic interviews.

Overview of recruitment procedures for Studies 1 and 2

Ethical clearance for this research was obtained from the ethics committee within the School of Applied Psychology and from the Griffith University Ethics Committee for research with humans (see appendix A). Permission to conduct research was also obtained from the Catholic Education Centre of Queensland (see appendix A).

Recruitment began shortly after in February 1998.

The experimental study presented in Chapter 5 required a sample of school personnel. These personnel were recruited from the Brisbane metropolitan area as part of a long-standing collaboration with the Catholic Education Centre of Queensland. This study's methodology involved three separate groups of school personal. Fifty-one of these personnel were involved in the FRIENDS training workshops as part of their in-

service accreditation (referred to forthwith as '*trainers*'). Another group of teachers ($N=18$) which will be discussed in more detail in chapter 6, were also involved in the FRIENDS training workshop following the consent from their principals and P & F (parent and friends) committees to actually implement the FRIENDS anxiety prevention program into their schools setting (referred to forthwith as '*group leaders*'). And lastly, a final group of teachers ($N=36$) were recruited to participate in the completion of the pre and post evaluation measures only (referred to forthwith as '*control teachers*').

In addition to the school personnel, 22 Psychologists were recruited to participate in this study from the Schools of Applied Psychology at two Queensland universities. These participants provided an opportunity to establish an expert level of performance expected on the FRIENDS training evaluation measure. An expert was defined as a psychologist who had previously (a) undergone intensive training in the FRIENDS program and had implemented the FRIENDS program at least once.

The study described in chapter six was conducted at seven demographically comparable schools covering the Brisbane Metropolitan areas. To optimise recruitment, contact was made with schools, parents and teachers via parent-teacher association evenings to discuss the details of participation and provide information regarding anxiety and the prevention program. School guidance officers were also provided with an information package outlining the FRIENDS anxiety prevention research project and encouraged to discuss potential participation with their principals. Schools selected for approach were representative of varying levels of socio-economic advantage. Of the nine schools invited to participate in the research, two declined, leaving the remaining seven schools. From discussions with individual schools, consent was dependent on their views

of allowing children to undergo diagnostic interviews, and administration of questionnaires, rather than being due to the acceptability of the FRIENDS program. All schools were coeducational, and the majority of children attending these schools (and living in Brisbane in general) were from white, Anglo-Saxon families, with English being their primary language.

Following school consent, schools matched for size, socio-demographics and socio-economics were randomly allocated to conditions. All parents were then asked to give informed consent for their child's participation in the research. In total, 594 children (314 females and 280 males) aged between 10-13 years were recruited from grades five to seven. This resulted in 432 children (234 females and 198 males) in the FRIENDS intervention condition and 162 children (80 females and 82 males) in the waitlist control condition. As the program was universal, all children who agreed to participate were invited to undertake the program. Parents of these children were also invited to participate in three parent evenings (the family component).

A detailed account of the methods and procedures for both studies is provided in Chapters 5 and 6. Each chapter includes a brief introduction that reiterates relevant findings from past research as the rationale for the study. This brief rationale is followed by a section on hypotheses specific to the study in question. The method of the study is then presented. The method section is followed by the results section, which details the methods of analysis and results of these analyses. Each chapter concludes with a discussion of the results specific to each study. Finally the contributions that the findings of these studies make to current knowledge of childhood anxiety, and the research and applied implications of these findings are discussed in Chapter 7.

CHAPTER FIVE

STUDY 1: Training pre-established systems in the school environment

Efficacy trials demonstrate that anxiety treatment and prevention programs can have a positive impact on reducing children's anxiety levels when implemented with high fidelity under closely scrutinised circumstances (Barrett, 1998; Barrett, Dadds, & Rapee, 1996; Barrett & Turner, 2001; Cobham, Dadds, & Spence, 1998; Dadds et al., 1997; Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; Last et al., 1998; Shortt, Barrett, & Fox, 2001; Silverman et al., 1998). However, what is not clear is whether these same programs do have an effect when implemented in a community (or ecologically valid) environment. These community-based studies often referred to as *effectiveness trials*, have been emphasised by a number of researchers (e.g. Chambless & Hollon, 1998; Dumas et al., 2001; Howard et al. 1996; Kopta et al., 1999; Nathan, Stuart, & Dolan, 2000; Seligman, 1996) as the next crucial step in research. That is, effectiveness studies have been identified as the best means of understanding the ultimate 'real world' value of these interventions, thereby strengthening their external validity. In essence, effectiveness research is characterised by studies in which a previously tested efficacious intervention is examined with a more heterogeneous sample in a more naturalistic setting (e.g. home, schools, general medical setting). In real world settings the intervention would be implemented by the setting's service partitioners rather than therapists, selected, trained and supervised by a research team (Dumas et al., 2001).

The purpose of the present study is to provide preliminary research evaluating the proximal and intermediate effects of such an ecological approach to anxiety prevention.

That is, to firstly train school teachers (the change agents) in the skills and techniques associated with the prevention of anxiety, and assess whether such training produces change in these change agents, in terms of increased knowledge and self-confidence (i.e. proximal effects). A second aim is to assess whether these change agents, after completing the training course, can effectively implement the FRIENDS prevention program (Barrett, Lowry-Webster & Holmes, 1999) as outlined in the intervention manual (i.e. intermediate effects).

Although studies explicitly examining the effectiveness of teachers in implementing an anxiety prevention program into their school setting are not available, we may get an insight into important variables that may assist in transporting efficacy trials to real world environments by examining areas where this transition is beginning to occur. For example, research on the treatment of conduct disorder by Weisz et al (1995) has shown that therapies for children that have been efficacious when implemented in a university laboratory circumstance are no longer effective when implemented in a community-based environment. Similar findings have been found in studies attempting to transport depression prevention programs to real world environments (Clarke et al., 1993) and substance abuse prevention programs (Pentz et al., 1990; Rohrbach, Graham & Hansen, 1993; Botvin et al., 1989). There are a number of factors, which could account for the discrepancies observed between the laboratory-based and community-based studies. Firstly, experienced and specifically trained psychologists deliver laboratory-based interventions and perhaps quite simply, they may be the better intervention agents for such programs. Alternatively, as in the Clarke et al. (1993) and Rohrbach et al (1993) study, teachers were provided with a minimum curriculum-based training, which may not

have been sufficient for teachers to adequately lead a psychosocial intervention. Finally, in the absence of fidelity data, non-significant results may show that the intervention was ineffective, that it was not delivered as designed, or that it changed in unspecified ways in the course of the study.

Further support for the involvement of these factors in transporting efficacy research to real world environments comes from meta-analyses conducted on a number of earlier studies reviewed by Moncher and Prinz (1991) and Dane and Schneider (1998). They found that factors including poor fidelity of implementation in community settings, and inadequate training of interventionists are central to the validity of any intervention study and are closely related to the statistical power of outcome analyses. That is, it is generally assumed that intervention agents who lack training, or who intervene with little or no supervision, only inflate error variance and reduce the likelihood of detecting significant effects (Chambless & Hollon, 1998; Dumas et al., 2001).

Thus it appears that two variables that may be responsible for boosting outcomes in efficacy studies relative to community settings, are therapist expertise and measurement of adherence to manual protocol. In regards to therapist expertise it is common practice for therapists in randomised control trials to have thorough intensive training in the treatment protocol with ongoing supervision (Dodge, 2001; Dumas et al., 2001). This is based on the assumption that training programs serve to increase knowledge and skills relevant for proficient implementation.

Limited research has been conducted into the evaluation of training programs to increase knowledge and skills acquisition related to the intervention at hand. In a large meta-analysis of studies, Moncher and Prinz (1991) found that less than half of the

studies reviewed reported on the amount of training (46.7%) and fewer reported on the nature of training (38%). As a typical example, in a study of a childhood anxiety prevention program, leaders of the group were clinical psychologists and postgraduate students (Dadds et al., 1997). The authors indicated that therapists were trained intensively in the skills associated with the implementation of the program during a one-day workshop in which delivery of the intervention sessions was rehearsed and discussed. This was followed by weekly supervision sessions provided over the course of treatment. However, no data were reported to show whether the therapists acquired competencies due to specific training and supervision in the intervention over and above their prior professional training, or whether different levels of the professional groups (i.e clinical psychologists vs. postgraduate students) required more or less training.

Obviously, this is an important gap in the research, and in regards to the current study, an imperative research question. That is, given that this is the first trial transporting anxiety efficacy studies to the real world environment of a school, ensuring minimal standards of competency are reached by teachers to implement the program is crucial. Furthermore, the act of releasing schoolteachers from class to attend training workshops is a costly and time-consuming venture for the school system. Hence, how much training these teachers require is an important issue, as too little training may weaken program fidelity, while too much training may limit the probability of schools taking on board such programs (Harnett, 2001). Thus, in order to increase community support for interventions we need to provide empirical evidence to answer these questions.

The model used for training teachers in the current study, has its origins in train-the-trainer methodology. A thorough review of the literature revealed that this model has typically been restricted to studies on geriatrics and gerontology aiming to facilitate the professional development of service providers, who predominantly have a medical background. For example, in a study by Coogle, Osgood & Parham (2000) an educational program focusing on geriatric alcohol abuse and alcoholism was conducted as a preventive training program in Virginia. A total of 90 service providers were recruited through the distribution of flyers to local community service groups, academic institutions and state agency and attended full day training sessions. The training workshops were presented using a variety of mediums including lectures, didactic demonstrations, and training booklets. All workshop attendees responded to both pre training and post training questionnaires. This knowledge questionnaire included 40 items, which were directly derived from these mediums and also contained questions concerning specific demographic information, including experience with alcoholism. Results revealed statistically significant gains in knowledge at posttest although the effect sizes were not reported.

Several additional limitations of this study are noteworthy. Firstly, no data were provided outlining the reliability or validity of the knowledge test, hence the results need to be interpreted cautiously. Furthermore, a high ceiling effect existed at pre test where 92% of items were answered correctly. These relatively high levels of knowledge among service providers prior to training may be attributed partially to the fact that trainees were self selected (indicative of an interest in the area or perhaps some independent study in the area) and many of the trainers had just previously attended a video-conference on

geriatric alcoholism prior to actual study. Ancillary data analyses (analyses of covariance) also revealed differences in knowledge gains between types of service providers participating. This emphasises the differing educational needs of individuals working in the fields of mental health or substance abuse. Thus it appears that future research should focus on competency-based curricula tied directly to specifically defined professions separately. Moreover the self-selecting bias could be counteracted if training was delivered to a whole school rather than recruiting volunteers. An additional limitation was that the study did not use a comparison control group. Therefore it is not possible to directly measure the impact that the training program alone had in changing knowledge.

To overcome some of these limitations, and of direct relevance to the current study, is a study conducted by Harnett (2001). The purpose of this study was to determine whether significant improvements were made in teachers' knowledge and self-efficacy following workshop training on the prevention of depression in adolescents using the *Resourceful Adolescent Program* (RAP; Shochet, Holland & Whitefield, 1997). Given that no measures previously existed in the literature in terms of evaluating the acquisition of relevant knowledge and self-efficacy in depression prevention research, the study also described the development of such a measure for teachers. This measure called the RAP Training Program Questionnaire (RAP-TPQ; Harnett, 2001), consisted of two constructs that were hypothesised to be predictive of successful implementation of a program targeting depression during adolescents. Specifically, confidence in implementing the program and knowledge relevant to the implementation of the prevention program. Psychometrics conducted on the scales indicated sound levels of

reliability, however due the limited sample size the study was unable to determine whether empirically, the scale measured separate constructs.

The trainers (i.e. teachers involved in the training workshop) consisted of one school psychologist and seven support teachers. A comparison control group consisting of seven experts (psychologists who, by definition, had experience in the actual implementation of the RAP program) and nine non experts (psychologists not specialised in the area) were used to compare changes observed in the teachers' knowledge and self-efficacy. The eight staff participated in the one-day depression prevention training program that involved a video presentation, dyadic teaching on topics relevant to implementation of the program, and experiential learning exercises through role plays.

In terms of levels of knowledge, the study's results revealed a significant increase in their scores following the training workshop on four of the six measures of knowledge. No significant increases were found on the RAP subscale of the knowledge test, which measured specific content knowledge of the RAP program (Shochet et al., 1997). No significant increases in-group leader confidence between pre and post-test were found. Despite the lack of a significant increase in confidence, by the end of training the group leaders showed levels of confidence that were not significantly different to experts but was significantly higher than non-experts.

This study demonstrates that teachers, following an intensive one-day training program, can show increases in knowledge and confidence. A number of limitations are noteworthy of mention in regards to the Harnett (2001) study. Firstly, a major limitation of the study was the limited samples sizes. Firstly, the sample of group leaders consisted of only eight participants, thus within group variance would greatly reduce the ability to

detect statistical differences. In line with this, the small number of participants included in the expert and non-expert panels greatly limited their use as meaningful comparison groups for statistical procedures. Consequently, only general comparisons could be made by observing the trends in these comparison groups' responses. Hence, whether the training itself actually served to significantly increase confidence and knowledge remains to be answered in future research with larger sample sizes. Furthermore, rather than targeting a homogenous sample in the workshop, the study combined personnel from a mix of professional backgrounds (i.e. psychologists, guidance officers, and support teachers). Consequently this may have an impact on the pitch and potency of the training workshop and outcome, also an identified limitation in the Coogee, Osgood and Parham (2000) study.

Another limitation was the use of psychologists as the non-expert control group. It could be suggested that psychologists, even if not specialists in the RAP depression prevention program (Shochet et al., 1997), would still possess a much higher level of knowledge surrounding depression (and thus certain subscales of the knowledge test) at pre test than school teachers. In order to gauge a more accurate picture of training benefits, it would appear more useful for future research to utilise a control group consisting of teachers matched on equivalent levels of pre-test knowledge. Beyond the above-mentioned limitations, this study provides preliminary evidence of the ability of teachers to demonstrate increased knowledge in internalising disorders in young people following a training workshop intervention.

As mentioned previously, beyond the importance of training and therapist expertise, several studies in the prevention literature also suggest that loss of program

integrity (or fidelity) may be an important factor in reducing efficacy (e.g. Botvin, Baker, Dusenberry, Tortu & Botvan, 1990; Botvin, Baker, James-Ortiz, Botvin & Kerner, 1992). Domitrovich and Greenberg (2000) argue that there are a number of important reasons for conducting fidelity research. First, without implementation information it is impossible to know what actually happened during an intervention trial. This information helps the researcher to explain variation in observed changes in outcomes. Furthermore, researchers conducting evaluation studies have been cautioned about the danger of Type III error. This type of error occurs when one assumes that the effects of an intervention are meaningful and conclusive, when in reality it is delivered so poorly as to invalidate outcome analyses (Dobson & Cook, 1980; Domitrovich & Greenberg, 2000). For example without measuring implementation quality, one may incorrectly judge a program ineffective when, in fact, negative outcome findings are a result of shortcomings in service delivery.

Notwithstanding the avowed importance of integrity measures, the inclusion of treatment integrity checks is not standard practice at this point. Moncher and Prinz's (1991) review found that 'despite overall methodological soundness, the majority (55%) of the studies reviewed essentially ignored the issue of treatment fidelity' (p.257). Less than 6% of the studies ensured that treatment was delivered according to protocol by combining use of treatment manuals, supervision of treatment providers, and performance of a manipulation check. In his review, Durlak (1997) noted that less than 5% of over 1,200 published prevention studies provide data on program implementation. A recent meta-analysis of indicated prevention programs found that 68.5% of the programs were described too broadly to be replicated and very few included

measurement of treatment fidelity (Durlak & Wells, 1998). More recently, Domitrovich and Greenberg (2000) reported that only 59% of effective prevention programs included some rating of fidelity and adherence in their implementation data. In combination this research suggest that measures of program integrity is a largely ignored, yet very crucial, aspect in treatment and prevention research.

Summary and Hypotheses

The purpose of the current study was to examine the effectiveness of the FRIENDS training workshop at two levels of influence: (1) the proximal impact of the FRIENDS training workshop on teachers' knowledge and self-efficacy and (2) the intermediate impact of training on trained teachers' ability to implement the program with integrity. As such, this chapter has been divided into two parts for ease of understanding.

Part A aims to firstly evaluate the FRIENDS training workshop in terms of enhancing teachers' understanding of anxiety symptomatology, and the early identification and prevention of anxiety difficulties (proximal effects). Given that no measures exist in the literature in terms of evaluating the acquisition of relevant knowledge and self-efficacy for implementing the anxiety prevention program, the current study also describes the development of such a measure for teachers. Knowledge of anxiety and of the FRIENDS program obviously plays an important role in the group leaders' ability to implement the FRIENDS program effectively into a school setting. Hence, items tapping into knowledge were considered important concepts to include in the scales. Furthermore, as effective job performance typically depends not only on individuals having the appropriate skills but also on them applying them correctly

(Hinrichs, 1966), and since individuals are unlikely to make the effort to correctly apply their skills unless they believe they can do so, i.e. unless they have positive or strong self-efficacy beliefs (Bandura, 1986), the inclusion of items tapping into self-confidence or self-efficacy were considered important concepts to include in the scales. Hence, this study will also report on the factor structure and reliability (internal consistency and stability) of the FRIENDS Workshop training measure.

Part B of this chapter focuses on the intermediate effects of the intervention. That is, the ability of teachers to implement the FRIENDS program according to the intervention manual. Dumas et al (2001) suggest fidelity enhancing strategies that are cost effective in community settings, include careful selection and training of interventionists, and manualisation of protocols. As the FRIENDS program already consists of a manualised program and given their training proposed in the current study, the ability of teachers to maintain fidelity is greatly enhanced. Based on the above-mentioned aims of the study, the following hypotheses were proposed:

- It is hypothesised that school staff who complete the FRIENDS training workshop will show an increase in knowledge and understanding of the principles of anxiety prevention from pre- to post- test as well as a significant increase in their levels of self-efficacy in running the FRIENDS program from pre to post test.
- A group comprised of teachers will serve as a normative comparison control group, as such it is hypothesised that there will be no significant differences between both teacher groups at pre-test, however at post test teachers who participate in the training workshop will evidence higher levels of confidence and higher levels of knowledge than control teachers.

- A group comprised of experts in the implementation of the FRIENDS anxiety program will also be used as an expert-control group, as such, it is hypothesised that there will be significant differences between groups on knowledge and self confidence at pre-test, with the expert scoring higher on both measures than the teacher workshop group.
- It is expected that there will be significant increase in scores on both these measures from pre to post-test for the teachers in the workshop condition only.
- In terms of protocol adherence, the aim is to gather quantitative and qualitative information about the integrity of implementation of FRIENDS program for the prevention of anxiety when implemented by school staff, and as such no directional hypotheses are made.

Method

Participants:

One hundred and twenty five professionals were recruited for the current study. These professionals consisted of 105 school personnel (Guidance Officers, Teachers, Principals and Learning Support Teachers) and 22 Psychologists. Seventy-two (69%) of the school personnel were female and 31 (31%) were male. Seventeen (77.3%) of the psychologists were female and 5 (22.3%) were male.

School personnel were recruited from the Brisbane metropolitan area as part of a long-standing collaboration with the Catholic Education Centre of Queensland. The study's methodology involved three separate groups of school personnel. Fifty-two of these personnel were involved *only* in the FRIENDS training workshops as part of their in-service accreditation (referred to forthwith as '*trainers*'). Another group of teachers

($N = 17$), were also involved in the FRIENDS training workshop. However, following the consent from their principals and P&F (parent and friends) committees, these teachers *also* went on to actually implement the FRIENDS anxiety prevention program into their school setting as part of study B² (referred to forthwith as ‘*group leaders*’). Lastly, a final group of teachers ($N = 36$) were recruited to participate in the completion of the pre and post evaluation measures only (referred to forthwith as ‘*control teachers*’). Notably, ‘trainers’ and ‘control teachers’ participated in part A of this chapter only, while ‘group leaders’ participated in both part A and part B.

In addition to the school personnel, 22 Psychologists were recruited to participate in part A of the study from the schools of Applied Psychology at two different Queensland universities. These participants provided an opportunity to establish an expert level of performance expected on the FRIENDS training evaluation measure. An expert was defined as a psychologist who had previously (a) undergone intensive training in the FRIENDS program and (b) had implemented the full FRIENDS anxiety program with children at least once. These ‘expert’ results were used as a comparison sample in order to see if the teachers trained in the workshop had reached an acceptable level of knowledge and understanding in terms of the prevention of anxiety disorders during childhood.

The mean number of years experience in working with children and adolescents was 4.09 years for Psychologists ($SD = 2.73$ years), 12.81 years for control teachers ($SD = 7.42$ years), and 13.09 years for teachers who attended the FRIENDS workshop ($SD = 8.45$ years). An independent samples t-test revealed no significant differences between

² These are also the teachers who implement the FRIENDS program with children discussed in more detail in chapter 5

teachers who attended the training workshop (group leaders and trainers) and those that did not (control teachers) on level of experience $t(100) = -.17$, n.s.

PART A: PROXIMAL EFFECTS OF TRAINING WORKSHOP

Measures of Proximal Effects

Two measures were used in study one. The first evaluation instrument was designed to measure target variables that are changeable, such as knowledge and self-efficacy that potentially influence the behaviours of program participants. The second instrument was designed to assess how useful participants found the training workshop in terms of meeting their expectations, providing information on anxiety and intervention practices and in preparing them to implement the FRIENDS program into their school setting. These are described in more detail below.

The FRIENDS Knowledge and Self-efficacy Scale (FKASES; Lowry-Webster, Barrett & Dadds, 1997).

The FRIENDS Knowledge and Self-efficacy scale consists of two scales that were hypothesised to be predictive of successful implementation of a prevention program targeting anxiety in children (see appendix B). The Self-efficacy scale was guided by social cognitive theory, using the construct of self-efficacy, which is a person's belief in his or her capability to master a particular level of performance (Bandura, 1986). This scale consists of 4 items, which directly measures self-efficacy levels in implementing a group program. Participants were asked to rate on a 5-point likert scale ranging from *not at all confident (0)* to *Extremely confident (4)* their level of confidence in their skills, knowledge, experience, capability to overcome existing obstacles (such as limited resources of time, space, and support).

The knowledge scale consists of 11 items, which directly measures knowledge surrounding anxiety and its treatment (e.g. How can fear be distinguished from anxiety?, Outline two strategies that may help children to cope with difficult or anxiety provoking situations). This scale comprised of both multiple choice questions (where correct answers received a score of one, and incorrect answers - a score of zero) and open ended questions weighted according to correct responses. These scores ranged from 1 point to a maximum score of 4. To minimise bias through guessing, a “Don’t know” option was provided for each item. As “Don’t know” responses represent a lack of knowledge they received a score of zero. Data relating to the reliability and factor structure of this measure is presented in the results section.

The FRIENDS Training Workshop Feedback Questionnaire

This questionnaire was developed to assess how useful trainees found the FRIENDS training workshop (see Appendix B). This measure consisted of seven items where participants were asked to rate on a 5-point likert scale from *strongly agree (4)* to *strongly disagree (0)* how useful they found the program in terms of preparing them to implement the program into their school setting and the quality of the training process in meeting this goal.

Procedure for Examining Proximal Effects

FRIENDS Workshop Training Group (Trainers and Group leaders)

School personnel taking part in the FRIENDS training program ($N = 69$) completed a research consent form outlining the purpose and nature of the study prior to their participation (see Appendix B). Following consent, trainers and group leaders were asked to provide demographic information, including job title, qualifications, and years

experience working specifically with children or teenagers. Schoolteachers were then given the pre-training FRIENDS knowledge and self-efficacy scale to complete prior to the training workshop.

Training was organised and conducted in a group setting of between 10 - 25 participants. It was designed to ensure that teachers: (1) had a thorough knowledge of anxiety (in terms of the development, maintenance and experience of symptoms of anxiety); (2) had thorough mastery of the FRIENDS program intervention they would conduct and (3) understood the teaching process issues involved in the FRIENDS program (i.e. use of praise and encouragement, normalising emotional experiences, eliciting knowledge from participants and then building upon this knowledge, prompting participants to use skills taught during the FRIENDS program, leader modelling of new skills, basic behaviour management skills).

Initial training was conducted by the current author and involved an intensive one-day workshop. Topics for training revolved around competencies and knowledge factors hypothesised to underlie the successful implementation of a school based prevention program. These included; (i) What is anxiety?, (ii) anxiety disorders and their risk factors, (iii) principles of prevention, (iv) a step by step guide through the FRIENDS program, (v) ethical issues involved with running groups with children, and (vi) group leader and group process skills (encouraged through role plays and experiential exercises). These workshops had already been designed and implemented nationally under a previous Department of Health and Family Services grant which had focused on training mental health professionals across Australia in anxiety prevention. Hence, all

training manuals, training aids, handouts, exercises, discussion questions and overheads were standardized across training workshops via a training manual and resource kit.

Following participation in the training workshops, trainers and group leaders were again administered the FRIENDS knowledge and self-efficacy scale. Additionally, workshop participants were also asked to complete the FRIENDS Training Workshop Feedback questionnaire at posttest.

Expert and Teacher Control Group

The expert ($N = 22$) and teacher control group ($N = 36$) who did not participate in training were provided with a consent form outlining the purpose and nature of the study (see Appendix B). Following this, participants were asked to provide the same demographic information requested from trainers and group leaders. Specifically, to outline their job title, qualifications, and years experience working specifically with children or teenagers. These participants were also provided with two copies of the FRIENDS knowledge questionnaire and FRIENDS confidence and Self-Efficacy Scale alongside instructions on how to complete the questionnaires (see Appendix D). Participants were also instructed to include a time interval between the two administrations. This interval served to approximate the time delay between the two administrations of the FRIENDS knowledge scale and FRIENDS confidence and self-efficacy scale at the beginning and the end of the one-day training workshop. Thus, experts and teacher controls were requested to complete the questionnaire on two occasions, with at least an 8-hour delay but no longer than 24 hours between the two administrations. To determine the actual time interval, participants were instructed to write the time and date of the two administrations of the questionnaire on the front page

of their questionnaire booklet. All experts and teacher controls reported that they completed the questionnaire within the time limits imposed.

PART B: INTERMEDIATE EFFECTS OF INTERVENTION

Measures for Assessing Intermediate Effects

FRIENDS Program Integrity Checklist (Barrett, Lowry-Webster, Turner, & Johnson, 1998).

This checklist lists session-by-session content areas and asks group leaders to record which activities were conducted for each session on a ‘yes’ or ‘no’ rating. This allowed a measure of the proportion of key concepts delivered for each session. This measure also asked group leaders to (a) rate how effective their implementation was for each activity (i.e. in engaging group participants and illustrating key concepts to meet activity aims). Group leaders were also asked to rate how much they deviated from the instructions in the FRIENDS manual. The effectiveness rating was made on a 4-point scale ranging from ‘extremely well’ (0) to ‘poor’ (3). The deviation rating was made on a four point scale, ranging from ‘no deviation’(0) to ‘deviated greatly from manual’(3) (See appendix C).

Procedure for Examining Intermediate Effects

Following their participation in the FRIENDS training workshop, 17 group leaders went on to implement the FRIENDS program into their individual school setting. The FRIENDS program is a 12-session CBT based program (Barrett, Lowry-Webster & Holmes, 1998) and is discussed in more detail in chapter six of this thesis. Detailed instructions for implementing the activities that make up each session are included in the group leaders’ manual. Teachers implemented the universal prevention program within

their usual classroom time for a period of 75 minutes. Sessions were run once a week.

Trainers were required to self-monitor their implementation using the FRIENDS integrity checklists immediately following the implementation of each session.

Twenty-five percent of the sessions were also randomly videotaped with independent observers, blind to the hypotheses of the project, rating trainers using the same FRIENDS Program Integrity Checklist (Barrett, Lowry-Webster, Turner, & Johnson, 1998). This was designed to help further assess program integrity and assist in measuring how accurately integrity measures are completed via self-report.

Results

Prior to the analysis, accuracy for data entry, missing values and fits between the distribution and assumptions of analyses conducted were examined. No violations of the assumptions were found. As with the method section, the results were broken up according to the separate aims proposed in the introduction (proximal and intermediate effects). However, presented first is the data relating to the reliability and factor structure of the Knowledge and Self-Efficacy Scale.

Scale Development

Factor Analysis

In order to determine whether, empirically, the scale measures separate constructs, an exploratory factor analysis (principal components) was conducted on the data. This was conducted on data provided by the complete sample of participants ($N = 125$), which was considered acceptable for this analysis (Hair et al., 1998). Furthermore, the data were highly structured and appropriate for the analysis, as indicated by the

Kaiser Meyer-Olkin measure of sampling adequacy, computed as .81 (Tabachnick & Fidell, 2001)

Examination of the scree plot yielded a two factor solution that seemed to contribute to explanation of the data (see appendix D). A simple structure was sought, however the pattern matrix revealed that it did not exist due to a number of items, which were found to load on both factors. These factor loadings are presented in table 5.1 . Using a .3 cut-off, items that split loaded were removed leaving one set of items for each scale.

From this table it can be interpreted that the first factor accounted for 43.6% of the variance and was labelled self-efficacy. The items that loaded on this factor related to confidence or self-efficacy to implement the FRIENDS program. The second factor accounted for 12.9% of the variance and was labelled knowledge scale. Items that loaded on this scale related to knowledge about anxiety and its treatment. Obviously replication of the solution is required before strong theoretical statements can be made.

Reliability

The reliability of the FRIENDS knowledge and self-efficacy scale was assessed in two ways. Firstly, the internal consistency of each scale was measured by the alpha coefficient. Second, the stability of the measure was measured by the Pearson product-moment coefficient in a test-retest procedure.

Internal consistency of the FRIENDS Knowledge and Self- Efficacy Scale

As the scales of this measure were developed to measure independent constructs (knowledge and self-efficacy), the reliability of each scale was calculated separately ($N = 125$). The Self-Efficacy scale demonstrates good reliability ($\alpha = .88$) while the

knowledge scale evidenced acceptable levels of internal consistency ($\alpha = .70$) (Kaplan & Saccuzzo, 1997).

Table 5.1.

Obliquely Rotated Factor Loadings of Items from the FRIENDS Knowledge and Self-Efficacy Scale

Questionnaire Items	Factor 1	Factor 2
Perceived ability	.897	
Skill confidence	.893	
Knowledge Confidence	.823	
Confidence Scale	.785	
Four causes of anxiety	.701	.376*
Ways parents and teachers can help	.687	.385*
Major features of anxiety	.623	.458*
Three skills to help children cope	.598	.432*
What is anxiety?		.690
Fear different to anxiety		.654
Partial success		.616
Universal prevention programs are		.615
Skills to regulate		.590
Anxiety more prevalent		.401
Grow out of anxiety		.311
Total Variance accounted for	43.6%	12.9%

Note: * = items were dropped from scale¹

Test-Retest Reliability of the FRIENDS Knowledge and Self-Efficacy Scale

The test-retest reliability of the FRIENDS knowledge and Self-Efficacy scale was evaluated to determine the extent to which the scale and subscale scores varied between two administrations of the questionnaire. As the training program was expected to produce an increase on each of the scales, teachers who participated in the FRIENDS training workshop were excluded from this analysis. Thus, these results are based on 58 participants (control teachers and psychologists) only.

The correlations between the first and second administrations of the FRIENDS Knowledge and Self-Efficacy measure indicate high correlations for the both the Knowledge Scale ($r = .98$) and Self-Efficacy Scale ($r = 1.0$). This result is expected given, the short interval between administrations. This demonstrates that over this time interval, changes in scores on these measures are not expected and thus any observed changes in scores within an 8 – 24 hour period are likely to be in response to the FRIENDS training workshop.

PART A: Proximal Effects of Training

Group Comparability

Preliminary analyses were conducted to ensure the equality of the two teacher groups at pre-intervention. An independent samples t-test revealed that there were no significant differences between teachers who attended the training workshop (group leaders and trainers) and those that did not (control teachers) on level of experience at pre-intervention $t(100) = -.17$, n.s. In order to gauge a more accurate picture of training benefits, teachers in the control condition were matched on equivalent levels of pre-test knowledge and self-efficacy with teachers undergoing the FRIENDS training workshop.

This resulted in 36 participants in each of these two conditions which made up the sample for the rest of the analyses conducted. T-tests analysing the dependent variables revealed no significant differences between the groups on the knowledge $t(70) = 0.00$, n.s. or self-efficacy scale $t(70) = 1.31$, n.s.

Changes on the FRIENDS Knowledge and Self-Efficacy Scale in Response to Training

The hypothesis to be tested was that the FRIENDS training program would increase the workshop attendees (trainers and group leaders) knowledge of anxiety and its treatment, and self-efficacy. In addition to testing this hypothesis, comparison's of control teachers as well as psychologists regarded as experts in the FRIENDS program were also evaluated. It was expected while group leaders and trainers would show matched levels to control teachers prior to training, they would demonstrate levels approaching that of expert psychologists following training on both the knowledge and self-efficacy scales.

To examine these hypotheses a 3 (group: control teachers vs. workshop attendees vs. experts) x 2 (time: pre-workshop vs. post-workshop) repeated measures MANOVA was conducted. Results revealed a significant time by group interaction for both the knowledge scale $F(1, 91) = 3.24.29$, $p < .05$, $\eta^2 = 0.88$ and self-efficacy scale $F(1, 91) = 182.91$, $p < .05$, $\eta^2 = 0.80$. The MANOVA also revealed significant main effects for both time for the knowledge scale $F(1, 91) = 286.23$, $p < .05$, $\eta^2 = 0.76$ and the self-efficacy scale $F(1, 91) = 159.67$, $p < .05$, $\eta^2 = 0.64$. Main effects for group were also found on the knowledge scale $F(1, 91) = 284.91$, $p < .05$, $\eta^2 = 0.86$ and self-efficacy scale $F(1, 91) = 41.00$, $p < .05$, $\eta^2 = 0.50$.

Figures 5.1 and 5.2 overlaid shows comparison of control teachers, trained teachers and experts on both the knowledge and self-efficacy scale. Follow-up univariate

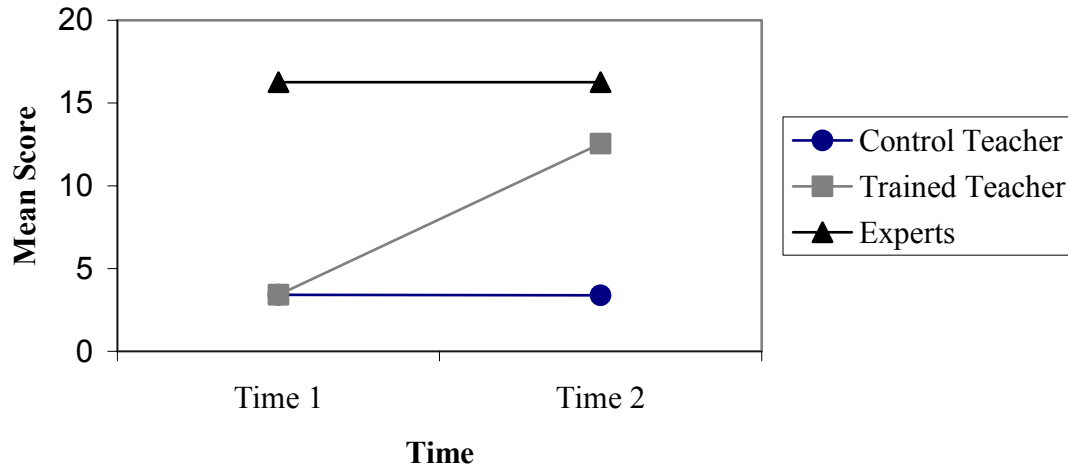


Figure 5.1. Comparison of means between the three groups at time 1 and time 2 on the Knowledge Scale.

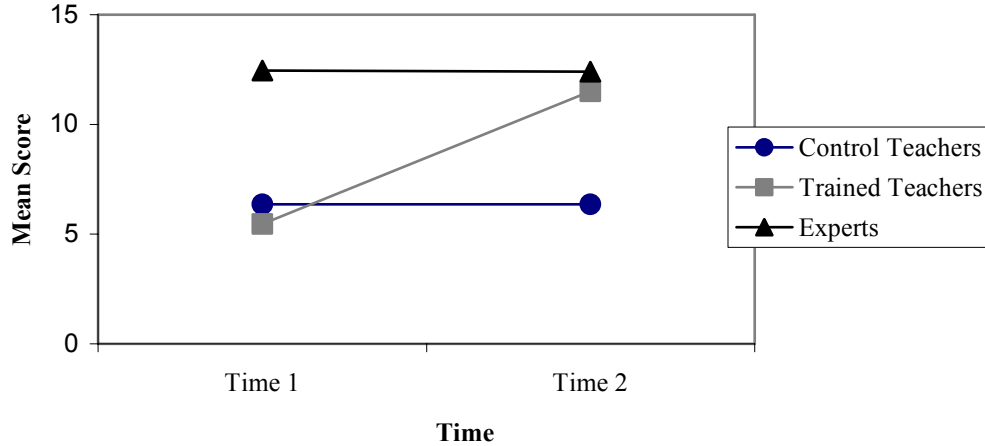


Figure 5.2. Comparison of means between the three groups at time 1 and time 2 on the Self-Efficacy Scale

analyses revealed that scores on the knowledge scale for participants in the control condition did not change significantly from pre to post test $t(35) = 1.00$, n.s, neither did

they change significantly on the self-efficacy scale $t(35) = 0.00$, n.s. Similarly, these t-tests demonstrated that scores on both the knowledge and self-efficacy scale for the expert group did not change significantly from pre to post test with $t(21) = 1.00$, n.s and $t(21) = 1.00$ n.s respectively. However, results revealed that for the workshop attendees condition, their scores on both the knowledge $t(35) = -20.11$, $p < .05$ and self-efficacy scale $t(35) = -15.40$, $p < .05$ changed significantly from time one to time two.

Independent samples t-tests conducted at pre-test indicated that there was a significant difference between control teachers and experts at pre test on both the knowledge $t(56) = -23.28$, $p < .05$ and self-efficacy scale $t(56) = -8.76$, $p < .05$ and a significant pre test difference between experts and the workshop attendees condition on knowledge $t(56) = -23.19$, $p < .05$ and self-efficacy $t(56) = -9.20$, $p < .05$. Independent samples t-tests conducted at post-test revealed that there was a significant difference between control teachers and workshop attendees on both the self-efficacy $t(70) = -9.02$, $p < .05$ and knowledge scale $t(70) = -16.57$, $p < .05$. Furthermore there was a significant difference found between the experts and workshop attendees on the knowledge scale $t(56) = -7.43$, $p < .05$ but not on the self-efficacy scales at post test $t(56) = -1.56$, n.s. A significant difference remained between the control teachers and experts at post test on both knowledge $t(56) = -23.05$, $p < .05$ and self-efficacy scales $t(56) = -8.56$, $p < .05$. The means and standard deviations of the scales for the trained teachers, experts and control teachers are presented in appendix E.

Group leader feedback on the quality of the FRIENDS training Program

The FRIENDS program workshop received positive evaluations from teachers who attended training. Table 5.2 presents teachers' ratings of the training workshop on a number of different elements related to the training process. As can be seen, 81.8% of workshop attendees indicated that they strongly agreed that the training was useful. Only 1.8% were unsure that the training workshop was enjoyable, while 68.2% of participants strongly agreed that training was enjoyable and a further 30.3% mildly agreed that it was enjoyable. Notably, 81.8% of trained teachers strongly agreed that the FRIENDS training workshop motivated them to implement the program into their individual school setting.

Table 5.2

Teacher ratings of the FRIENDS training workshop

	Strongly Agree (%)	Mildly Agree (%)	Unsure (%)	Mildly Disagree (%)	Strongly Disagree (%)
The FRIENDS training was useful	81.8	18.2	0	0	0
The FRIENDS training was enjoyable	68.2	30.3	1.5	0	0
The FRIENDS training was easy to understand	75.8	24.2	0	0	0
The FRIENDS training met my expectations	80.3	19.7	0	0	0
The FRIENDS training was well paced	72.7	25.8	1.5	0	0
The FRIENDS training has motivated me to implement the program into my setting	81.8	16.7	1.5	0	0
The workshop facilitator was effective in their role of delivering training program	75.8	24.2	0	0	0

PART B: Intermediate effect of the FRIENDS Training Workshop

The hypothesis to be tested was that following the workshop, trained group leaders would implement the FRIENDS program with integrity. Specifically, the FRIENDS integrity checklist aimed to assess (a) the proportion of key concepts delivered for each session (b) rate how effective group leaders were in their implementation for each activity (i.e. in engaging group participants and illustrating key concepts to meet activity aims) and (c) assess their adherence to the instructions as presented in the FRIENDS group leaders' manual. Both teachers themselves, and independent observers who observed 21% of the sessions completed this checklist. The results of the integrity checklist are presented in table 5.3. From the table it can be seen that 94.1% of all core activities were implemented with the remaining 5.9% of the sample not completing only one activity out of the whole 12 session FRIENDS program as self- rated by teachers. Similarly high rates were observed by independent raters, with the mean percentage of activities completed being 97.7%.

Group leaders reported that activities were implemented with minimal deviation from the manual. The deviation ratings were made on a four-point scale with zero indicating no deviation and 3 indicating maximum deviation. An important consideration was to determine whether adherence and effectiveness varied over the course of the FRIENDS program implementation. That is, group leaders may spend more time preparing for each session at the early stages of implementation, however the initial enthusiasm for the program may subside over the course of the program affecting levels

of integrity. As such, program sessions were grouped into early sessions (session 1-4), middle sessions (session 5-8) and late sessions (session 9 - Booster 2). From self-ratings the mean deviation was 0.12 (SD = 0.14) for early sessions, 0.23 (SD = 0.11) for the middle sessions, and 0.15 (SD = 0.09) for late sessions. Independent observers made

Table 5.3

Percentages, means and standard deviations of the FRIENDS integrity checklist for early, middle and late sessions, averaged across intervention groups.

Sessions	Timing of Sessions							
	Early		Middle		Late		All	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<u>SELF RATINGS</u>								
Percentage of activities completed	96.6%		93.3%		92.0%		94.1%	
Deviation from instructions in manual ³	0.12	0.07	0.15	0.08	0.14	0.10	0.13	0.05
Effectiveness of implementation (i.e. engaging participants and meeting activity aims) ⁴	0.36	0.29	0.46	0.25	0.41	0.25	0.40	0.17
<u>OBSERVER RATINGS (21% of sessions)</u>								
Percentage of activities completed	100%		100%		93.3%		97.7%	
Deviation from instructions in manual	0.28	0.15	0.31	0.15	0.17	0.09	0.25	0.13
Effectiveness of implementation (i.e. engaging participants and activity aims)	0.52	0.21	0.69	0.34	0.44	0.18	0.54	0.25

³ Scale ranges from 0 (no deviation) to 3 (deviated greatly)

⁴ Scale ranges from 0 (extremely well) to 3 (not at all effective)

similar observations with means of 0.28 for early session ($SD = 0.15$), 0.31 for middle sessions ($SD = 0.15$) and 0.17 for late sessions ($SD = 0.09$). In the absence of normative data for the FRIENDS integrity checklist, these ratings are interpreted to represent low levels of deviation.

On a four point scale ranging from ‘extremely well’ (0) to ‘poor’ (3), group leaders rating their effectiveness of implementation (i.e. engaging participants and meeting activity aims). On this scale self-ratings of effectiveness were high with mean scores of 0.36, 0.46, and 0.41 for the early, middle and late stages of the program respectively. Independent observers rated teachers as slightly less effective for the middle sessions ($M = .69$) than the other sessions (early $M = 0.52$; Late $M = 0.54$), however these mean scores are still interpreted as successful.

Discussion

The aims of this study were to investigate the effectiveness of the FRIENDS training workshop at two levels of influence: (a) the proximal impact of the FRIENDS training on the knowledge and self-efficacy of teachers and (b) the intermediate impact of the training, on the quality or fidelity of implementation of the FRIENDS program in accordance with the FRIENDS program manual. These are discussed in turn below:

Part A: Proximal Impact of the FRIENDS Training Workshop

The first hypothesis was that school staff who completed the FRIENDS training workshop would show an increase in knowledge of anxiety and its prevention from pre- to post- test, as well as a significant increase in their levels of self-efficacy in implementing the FRIENDS program from pre to post test. Levels of knowledge and self-efficacy were compared to levels exhibited by control teachers and psychologists

regarded as experts both prior to and following the training workshop. It was predicted that at pre-test there would be a significant difference between experts and the other two groups for both knowledge and self-efficacy. At post-test, both knowledge and self-efficacy was expected to increase in the trained teacher group only, approaching levels similar to the expert group.

The results of this study largely supported the hypotheses. That is, trained teachers demonstrated significant increases in their levels of anxiety knowledge and prevention, compared to the teacher control group. Although significant differences still remained between experts and trained teachers at post test, the levels of knowledge of the trained teachers appeared to approach levels similar to the experts. This was expected given that experts were psychologists who had extensive training in anxiety prevention and the FRIENDS program, and had implemented the full program at least once.

In terms of levels of self-efficacy to implement the FRIENDS program, results again supported the hypothesis, demonstrating significant increases in self-efficacy for the trained teacher group only. Interestingly, at post-test there was no significant difference in levels of self-efficacy between trained teachers and experts. This result was surprising given the level of experience experts had with the FRIENDS program. However, as suggested by Bandura (1986) self-efficacy refers to individuals' judgements of their capabilities to execute action required to attain certain levels of performance. It is not concerned so much with the skills or knowledge of individuals, but as to whether or not they *believe* they can use their skills to reach certain goals, such as performing really well. Thus, it may be that as trained teachers were already experienced in working with children in a classroom setting, the act of attending a training workshop which outlined

step by step the FRIENDS curriculum was sufficient to increase their self-efficacy to implement the FRIENDS program over a short period of time. Furthermore, these trained teachers had on average 15 years of experience in working with children compared to the expert group, which only had a mean of three years experience. This obviously raises concerns about group comparability. This is a notable caveat of the current study, however given the short amount of time the FRIENDS program has been available, the number of psychologists regarded as experts in the FRIENDS program is limited.

The findings of the current study are similar to that of Harnett (2001) who found increases in teachers' knowledge and confidence following an intensive one-day training workshop in adolescent depression. Hence, it appears that one day of intense training is sufficient to equip teachers with knowledge and self-efficacy surrounding the prevention of internalising problems in children. Having established that teachers' evidenced significant increases on these measures, the next step was to determine whether the level of knowledge and confidence acquired, was sufficient for teachers to implement the program with integrity.

Part B: Intermediate Impact of the FRIENDS Training Workshop

A final aim of this study was to examine whether teachers could implement the FRIENDS program in accordance with the protocol outlined in the FRIENDS group leaders' manual. A major advantage of therapeutic manuals such as the FRIENDS program is that they allow for a higher degree of standardisation and accountability because they provide explicit guidelines for implementation (Luborsky & DeRubeis, 1984). Overall the results suggested that teachers implemented the program with high

levels of integrity, as rated by both themselves and independent observers. While further research is needed to ascertain normative data for program integrity, the results appear positive at this time.

Taken together, these results demonstrate that teachers can be trained to implement a psychological intervention according to protocol following a training workshop of only one day. This has far reaching implications. Given the high prevalence of anxiety in the community (Anderson, Williams, McGee, & Silva, 1987; Boyd, Kostanski, Gullone, Ollendick, & Shek, 2000; Dadds, Spence, Holland, Barrett, and Laurens, 1997; Kashani & Orvaschel, 1990; Ollendick & King, 1994), and the ability of teachers to reach a great number of students over a short period of time, this is a cost effective means of service delivery.

A strength of this approach is also in its ecological framework (Bronfenbrenner, 1979; Felner & Felner, 1989), inviting teachers to participate and building upon family and school resources. This places the child's behaviour within two influential contexts, as well as emphasizing the interactional process of development. Moreover, there is a widespread need for educational based programs that sensitise teachers to anxiety disorders in children. Previous research has demonstrated the difficulty teachers have in identifying anxiety in children because they tend to be less visible than their externalising counterparts (Dadds et al., 1997). Educational efforts to enhance detection and promote positive coping skills constitute a proactive approach to anxiety problems.

It is important to consider the limitations of this study and how further research might address these. Firstly, a methodological problem associated with this study was the measures of program integrity themselves. The most powerful tool in enhancing

fidelity is the act of monitoring fidelity itself (Dodge, 2001). That is, when interventionists believe that they are being scrutinised, they may adhere to a protocol more closely. Thus, whether or not teachers would implement the program with such integrity when not monitored and the associated effects on outcome for children remains to be demonstrated. Future research could overcome this limitation by measuring program integrity under different levels of intrusion. For example comparing teachers' behaviour when no program integrity measures taken versus self-rated and independent observer rated measures. An associated concern regards the use of manuals as they may limit flexibility in addressing issues relevant to the intervention but that are not covered in the manual (Kendall, & Chu, 2000). Thus future studies could also examine the effect of differing levels of integrity on outcomes. This would also help to ascertain the most 'active' components of the FRIENDS program which bring about change for participating children, and which components can be modified.

Given that this is the first trial transporting anxiety efficacy studies to the real world environment of a school, ensuring minimal standards of competency are reached by teachers to implement the program is crucial. The act of releasing schoolteachers from class to attend training workshops is a costly and time-consuming venture for the school system. The current study provides preliminary evidence, which suggests that a one-day workshop is sufficient for increasing teachers' knowledge of anxiety, their self-efficacy to implement an anxiety prevention program, and their actual ability of implementing the program in accordance with protocol. Having established that teachers implemented the FRIENDS program with integrity, the next question was to determine whether the FRIENDS program was effective. Specifically, by examining the

outcomes for children in terms of actually preventing and reducing existing levels of anxiety. This will be discussed in the following chapter.

CHAPTER SIX:

Study 2: Distal Effects Of The Friends Universal

Anxiety Prevention Program

The study reported in the previous chapter found that the FRIENDS training workshop had a positive impact on the acquisition of teacher knowledge, self-efficacy and ability to implement the CBT based anxiety prevention program in accordance with the manual. The current chapter now aims to investigate the impact of this anxiety prevention program (FRIENDS; Barrett, Lowry-Webster & Holmes, 1999) on students' levels of anxiety and depression when implemented by these trained teachers (i.e. distal effects).

The literature reviewed in Chapter three identified a number of published studies, which provide empirical support for both individual and group CBT treatment as being more effective than a waitlist condition for reducing anxiety when implemented by extensively trained and supervised clinicians, (Barrett, Dadds, & Rapee, 1996; Barrett, 1998; Cobham, Dadds, & Spence, 1999; Dadds et al., 1997; Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; 2000; Last et al., 1998; Shortt, Barrett & Fox, 2001; Silverman et al., 1999). There are also a growing number of studies examining the impact of incorporating parents in the therapeutic process. Involving parents is important, because factors such as high parental control, parental anxiety and parental reinforcement of avoidance coping strategies have been implicated in the maintenance of anxiety in children (Barrett, et al., 1996; Cobham et al., 1999; Rapee, 1997; Shortt et al., 2001). Certainly, these independent clinical trials indicate that anxiety disorders in late childhood and early adolescence can be effectively

treated. Yet as Tuma (1989), Day and Roberts (1991) and Zubrick et al (1997) highlighted, of those in need of mental health services, less than 20% receive appropriate care. Children in need are not being reached, waiting lists are long and no show rates and family dropouts sometimes exceed 50% (Weist, 1999).

Subsequently, over the last few years' prevention has been touted as the most important direction for researchers and clinicians to focus on in dealing with anxiety disorders during childhood and adolescence (Dadds et al., 1997; King, Hamilton & Murphy, 1983; Spence, 1994; Spence, 2001, Munoz, 2001). It is now widely accepted that anxiety disorders are the most common form of psychological distress self-reported throughout this period of the lifespan (Anderson, Williams, McGee & Silva, 1987; Kashani & Orvaschel, 1990; Ollendick & King, 1994). Indeed, current estimates of the prevalence of anxiety in children are alarming. Recent research in Australia suggests that around one in six children experience anxiety severe enough to interfere with their daily functioning (Boyd, Kostanski, Gullone, Ollendick, & Shek, 2000; Dadds, Spence, Holland, Barrett & Laurens, 1997). Beyond the high prevalence rates, anxiety disorders are associated with a wide range of psychosocial impairments (Last, Hanson, & Franco, 1997; Mattison, 1992). They have also been identified as significant risk factors for other disorders, particularly other anxiety disorders and depression (Cole et al., 1998; Orvaschel, Lewinsohn & Seeley, 1995), and tend to be stable during childhood and adolescence, continuing into adulthood if left untreated (Cantwell & Baker, 1989; Keller et al., 1992).

In addition to the personal suffering experienced by children and their families, anxiety disorders also have a tremendous cost to society. Estimates from the Burden of

Disease Project (Murray & Lopez, 1996) suggest that anxiety disorders represent one of the most significant health problems in terms of global burden of disease, exceeding the cost of the majority of physical health problems. According to a study sponsored by the Anxiety Disorders Association of America, anxiety disorders cost the nation more than \$42 billion dollars a year (Greenberg, et al., 1999). Australia is likely to evidence a similar pattern of expense, with more than half of this cost associated with repeated visits to health care services, with sufferers attempting to seek relief from anxiety symptoms that frequently mimic physical illnesses. Beyond this, if anxiety persists into adulthood, costs due to unemployment, pension payments, days lost from work, hospitalisation and medication must also be calculated (Donovan & Spence, 2000). Taken together these factors are powerful forces in prompting researchers to develop ways to best intervene, reduce or remediate the cognitive, behavioural, and emotional difficulties associated with anxiety.

Despite increasing emphasis on prevention, both by government and mental health policies, and increased attention in the literature on theoretical aspects of prevention, actual controlled preventive interventions are only slowly beginning to emerge. For example Dadds et al., (1997), conducted the first controlled prevention trial with a community cohort of anxious children. This project employed a combined indicated⁵ and selective⁶ approach to the development of anxiety disorders in young people. The aim was to provide a comprehensive coverage of children, including those who were disorder free but showed mild anxious features, through to children who met

⁵ *Indicated prevention programs* target individuals who are identified as having minimal but detectable behavioural symptoms or biological markers related to mental disorders, but who do not yet meet diagnostic criteria.

⁶ *Selective prevention programs* target individuals whose risk (based on biological or social factors) of developing mental disorders are significantly higher than average.

diagnostic criteria for an anxiety disorder, but at a low level of severity. A total of 1,786 seven to fourteen year olds were screened for anxiety problems using teacher nominations and children's self-report. After recruitment and diagnostic interviews, 128 children were selected and assigned to either a 10 week school based child and parent focussed psychosocial intervention (the *Coping Koala Manual*; Barrett, Dadds, & Holland, 1994) or to a monitoring group. Immediately following completion of the program, no significant differences were evident between the two groups. However at 6-month follow-up, the results demonstrated not only a significant reduction in existing anxiety, but also a prevention effect, where 58% of children in the monitoring group progressed to a diagnosable disorder, compared to only 16% of the intervention group. Moreover, even at 24-months follow-up these improvements were maintained in the intervention group only (Dadds, Holland, Barrett, Laurens & Spence, 1999). These results are promising, particularly given the design of the study (randomised trial) and the use of diagnostic classifications as outcome measures. As such, this trial demonstrated that anxiety disorders can be ameliorated and prevented, avoiding the high levels of subjective distress for individuals and their families, and the negative long term consequences in terms of disruption to relationships, schooling, and vocational development.

Similarly the few other selective based prevention programs reported in the literature with internalising problems in young people (i.e. depression: Jaycox et al., 1994; and shyness in preschoolers, La Frenier & Capuano, 1997) also found positive results when implemented by specialist staff. Despite these encouraging results, this model of prevention has a number of limitations inherent in its design. That is, a labelling or

stigmatising effect may have been created because the studies were based on identifying individuals “at risk” for anxiety or depression, and therefore may run contrary to the intention of promoting children’s self confidence and esteem. Further the Jaycox et al. (1994) study encountered difficulties in recruiting and maintaining the attendance of participants as the program was implemented outside of normal school hours. Hence those students that remained in the study could potentially manifest a self-selection bias, being only the most motivated and committed children and families. Both the identified ethical problems of labelling, and attendance difficulties could be substantially reduced if future studies implemented prevention programs routinely as part of the school curriculum (i.e. universal prevention model).

However, only one universal prevention trial of childhood anxiety could be found in the literature (Barrett & Turner, 2001). This study was conducted following the initiation of the present PhD study by a research group from the same university and incorporates a portion of the data from the present research. While further details of the current PhD study will be discussed shortly, a review of findings from their data only will now be discussed. The specific aims of this study were firstly, to examine the preventive effects of the intervention on participants’ self – reported anxiety and depression post-intervention, in comparison to a usual care (standard curriculum) monitoring condition. Despite positive findings from the indicated and selective intervention of the Dadds et al (1997) study, theoretically a universal intervention may not be as efficacious as selective or indicated preventive intervention for a number of reasons (e.g., large numbers of children, many of whom would not be at-risk). Then again, it is possible that the intervention would be efficacious given that it may provide all children with positive

coping and problem solving skills. Thus, this study sought to empirically answer this question.

Three hundred and eight children (142 girls and 166 boys) from grade 6 (mean age 10.75, range 10-12 years) from six schools participated in the study. Schools rather than participants were selected as the unit of random assignment and the schools were assigned to one of two intervention conditions: Psychologist-Led (PL; $N = 188$) or a Standard Curriculum (usual care) monitoring condition (SC; $N = 137$). The intervention was based on the *FRIENDS for Children* (Barrett, Lowry-Webster, & Holmes, 1999) which is a brief cognitive-behavioural intervention initially designed and validated as a group-based treatment for clinically anxious children (Shortt et al., 2001).

Given the non-clinical nature of the sample, hypotheses were examined using tests of both statistical and clinical significance. To examine the statistical significance of the intervention, participants' pre-intervention scores were compared with their post-intervention scores on each of the dependant measures. All children who received the intervention, showed improvements in their pre- to post- intervention scores on the self-report measures of anxiety (Spence Children's Anxiety Scale, SCAS; Spence, 1998 and the Revised Children's Manifest Anxiety Scale, RCMAS; Reynolds & Richmond, 1978). Self-reported depression (using the Children's Depression Inventory; CDI, Kovacs, 1981) showed some positive change for both conditions, with no significant difference between the two groups. However, as mentioned above these results were of statistical change only.

Consequently, this study also sought to examine the preventive effects of the intervention on those children considered to be "at-risk" (i.e. scoring above the clinical

cut-off on the Spence Children's Anxiety Scale, Spence, 1997). Unfortunately, due to the limited number of participants, these statistical analyses could not be conducted due to insufficient power. Consequently, Barrett and Turner (2001) examined the frequencies of "at-risk" children who became "healthy" at post-intervention, which indicated some positive trends. Compared to the monitoring control condition, greater numbers of participants in the psychologist-led intervention moved into the "healthy" category, on measures of both anxious and depressive symptomatology.

As such, the results of this study demonstrates that the FRIENDS for children program can be successfully delivered to a universal school-based population and integrated into the classroom curriculum when implemented by trained and supervised psychologists. These findings advance research conducted by Dadds et al., (1997) by demonstrating that targeting all children in a grade, rather than the potentially detrimental impact of identifying and intervening only with children 'at risk', still produces positive effects. While the extent of effect of this intervention is unlikely to be known until follow-up assessments are completed, these preliminary results are especially promising in view of one of the frequently reported disadvantages of a universal intervention. That is, given the moderately low dosage participants receive in a universal intervention (in comparison to a indicated, selected or treatment interventions), children "at-risk" of anxiety might not receive sufficient exposure (duration or intensity) to alter their pathological developmental pathway (Greenberg et al., 1999). The initial trends demonstrated in this study suggest that intervention participants do receive sufficient exposure in universal prevention programs. Notwithstanding these results, this method of prevention is still a somewhat costly alternative given the high costs associated with

specialist-based interventions. While no long-term follow-up data was reported, these findings encourage the pursuit of further research into universal childhood anxiety prevention programs. Not only in regards to researching the long term effects, but also in the evaluation of the real world effectiveness of such a program when implemented by existing systems of a school setting.

No further universal programs focusing on prevention of childhood anxiety could be found. When extending the search beyond prevention of anxiety, only ten studies looking at the universal prevention of internalising symptomatology could be found (Cunningham et al., 1999; Dubow et al., 1993; Clarke et al., 1993; 1993b; Klingman & Hoddort, 1993; Osbach & Bar-Joseph, 1993; Quayle et al., 2001; Roth, 2000; Shochet, Holland & Whitefield, 2001). While these studies provide a good argument for a universal approach to prevention, again these prevention trials demonstrate the efficacy of such interventions when managed by a specialist university team and thus can only demonstrate efficacy under ideal staffing conditions. That is, all the aforementioned studies have been primarily concerned with demonstrating the impact of the interventions under relatively ‘ideal’ conditions (efficacy studies). For example, therapists are selected, trained and supervised by the research team who developed the intervention. Thus, there may well be a difference in the impact of a program run in the “real-world” compared to more ideal conditions, that is, between ‘efficacy’ and ‘effectiveness’ studies. Furthermore, disseminating prevention programs on a nation-wide basis can be expected to raise a number of problems. First, as mentioned above, there is little evidence that the programs will be effective when run by school professionals without the advantage of regular supervision and support of the university research team (Harnett, 2001). The

absence of supervision and support may reduce program integrity and the effectiveness of the program. Furthermore, this method of using specialist teams in prevention is still a somewhat costly alternative to treating anxiety disorders and other internalising difficulties.

To date, only a limited number of these universal prevention programs have been implemented with trained teachers to examine the real world effectiveness of these programs with internalising problems. Of those that have been implemented, results have been mixed, with many studies suffering from a range of methodological problems that limit the conclusions that can be drawn. Beyond these methodological factors, there are a number of additional factors, which might account for the mixed findings regarding teacher led programs and other universal interventions found to produce positive outcomes in the literature. Firstly, there are notable differences in the length and content of the intervention. For example Clarke et al. (1993) conducted a teacher led intervention aimed at preventing depression in adolescence. This program comprised of 6 sessions (total duration 6 hours) that only contained an educational component regarding depression in adolescence. Whereas, Barrett and Turner (2001), Dadds et al. (1997) and Shochet et al., (2001) offered more comprehensive interventions (total duration 12 – 26 hours), with both an educational component and a component specifically focused upon application of the skills taught. Secondly, and more obviously, experienced and specifically trained psychologists delivered the interventions described by Dadds et al. (1997), Shochet et al., (2001) and Barrett and Turner (2001). Also, Clarke et al. (1993) provided teachers with a minimum curriculum-based training, which may not have been sufficient for teachers to adequately lead a psychosocial intervention. This is compared

to intensive training and supervision offered by the psychologist led programs. Furthermore in the absence of fidelity (or integrity) data, non- significant results may show that the intervention was ineffective or that unknown variables added to that intervention influenced the results. Specifically, that it was not delivered as designed, or that it changed in unspecified ways in the course of the study.

More recently, Harnett (2001) conducted a systematic replication of the psychologist delivered universal prevention study reported by Shochet et al (2001) in attempt to overcome many of these identified limitations associated with teacher delivered interventions. Specifically, Harnett aimed to evaluate the *Resourceful Adolescent Program* (RAP; Shochet, Holland & Whitefield, 1997) program, which had previously been evaluated within a school setting by a university based research team, under real world conditions with trained school personnel. Teachers and guidance officers were provided with a full day training workshop on the RAP program. A notable strength of this study was the focus on assessing acceptable levels of teacher knowledge and acquisition of skills prior to implementation of the program.

Following the training workshop, teachers and guidance officers implemented the program with 96 female students from two schools aged 12-16 years. A comparison group of 116 girls acted as a usual care comparison group. Looking at the sample as a whole, no significant differences were found between the two groups in their levels of risk or resilience at post or 10-month follow-up assessment. The impact of the intervention was also assessed in terms of its clinical significance. This was assessed by looking at changes in the clinical status (Healthy or clinical) over the three assessment times for the two groups. There was limited evidence of a prevention effect.

Specifically, the intervention group showed a non-significant trend towards fewer cases classified as healthy at pre-intervention (i.e. scoring below clinical cut-offs) moving into the clinical range at post-intervention and follow-up, compared with the comparison group. Evidence of a health promotion effect was investigated by looking at the percentage of students moving from clinical status at pre-intervention to healthy status at post intervention and follow-up. Results revealed that the percentage of pre-intervention clinical students classified as healthy was higher for the intervention group (36.4%) compared with the comparison group (21.9%). However, this difference also failed to reach significance. While this result is not significant, the finding is consistent with the study of Shochet et al., (2001) who found that the major beneficiaries of their study were those students who showed elevated symptoms of depression and hopelessness. In this study, 75% of the sub-clinical adolescents from the intervention group moved into the healthy range at follow-up compared to 41.2% of the comparison group.

The failure to find a statistically significant intervention effects requires explanation. This is particularly important in the light of evidence that guidance officers maintained the integrity of the program in its implementation. One explanation offered by Harnett (2001) concerns the provision of supervision and support for group leaders. The provision of supervision had been identified as an important factor in differentiating efficacy and effectiveness studies (Chambless & Hollon, 1998). Furthermore, even though good levels of integrity and participant involvement were found, measures of other process variables were not taken. Consequently, although trained school personnel may be competent at keeping to a lesson plan or adhering to an intervention manual, they may be less competent at responding to critical interpersonal and group process variables

crucial in bringing about change (Harnett, 2001). Interestingly no mention of specific training in these process variables during the workshop was mentioned. Thus, it may be that the effectiveness of these interventions with teachers may rest on intensive training on such variables as reinforcement, modelling, normalisation, and group process skills. A further methodological issue that may limit the conclusions that can be drawn is the non-representativeness of the sample selected. Specifically, the sample was drawn from schools comprised of females only. Moreover, as identified in universal prevention studies conducted by Osbach & Bar-Joseph (1993) and Klingman & Hoddort (1993), more benefits were observed for male participants than their female counterparts. This raises questions about gender effects, an issue largely ignored in the empirical research conducted to date. Obviously further research and replication is needed before definitive conclusions can be drawn.

To date there has been no implementation of a universal prevention trial specifically for anxiety, where trained teachers implement programs to all children routinely as part of the school syllabus. Hence a fundamental question remains- how do universal anxiety prevention programs work when managed and implemented by pre-existing systems of a school, as opposed to specialised mental health professionals? The result of this question is a fundamental community health issue.

As such, this study seeks to extend research into the prevention of anxiety disorders and other mental health problems by assessing a universal intervention implemented by teachers already in place in the community setting. By involving teachers in the implementation of these programs, significant advances in our knowledge of how best to design and implement preventive programs for young people with anxiety disorders and

other mental health problems may be made. If the implementation of these programs is found to be effective, this could allow future prevention programs with children and adolescents to reach a greater number of students over a shorter period of time. Hence, this has the potential to be a more cost-effective alternative to reducing the overall incidence of anxiety disorders within the community.

In addition, a universal prevention program would help to overcome many of the problems encountered in clinical practice with the high levels of no shows, dropouts, lengthy waiting lists, and reaching those in need, specifically because *all* children in a grade would be targeted. Although the combined approach of the universal train-the-trainer model cannot completely ameliorate the need for direct professional interventions, this service-delivery approach may reduce the demand and cost of anxiety problems that school staff may effectively manage themselves.

This study also seeks to explore the effectiveness of the anxiety prevention program on levels of depression. The existence of a strong relationship between anxiety and depression has been widely demonstrated (Cole et al., 1998; Katon & Roy-Byrne, 1991). Orvaschel, Lewinsohn and Seeley (1995) noted that nearly two thirds (64.5%) of adolescents with a primary diagnosis of anxiety disorder later developed a second diagnosis of major depressive disorder. A number of researchers have suggested that anxiety and depression share a common underlying diathesis (Clark, 1989), or as sharing overlapping symptomatology which makes them difficult to distinguish (Katon & Roy-Byrne, 1991). Others argue that depression develops secondary to anxiety as a result of the increasing feelings of frustration and failure spurred on by the unsuccessful attempts to cope with, or manage, their anxiety disorder (Cole et al., 1998). Although the

taxonomy of the relationship between anxiety and depression is still a major focus of current research, and review of this literature is beyond the scope of the current chapter, it could be argued that a change in the level of anxiety from pre to post intervention may also result in a change in the level of reported depression. This argument is strengthened given the existence of many common overlapping elements of cognitive-behavioural treatments for both anxiety and depression that have demonstrated efficaciousness in the literature. For example both treatments focus on affective education (see Kendall et al., 1992; Barrett, 1995; Stark, Rouse & Livingston, 1991), relaxation training, enactive programming, scheduling of pleasurable activities, coping skills and problem solving strategies, social support, issues associated with reinforcement, cognitive processes and self monitoring (see Kendall, Kortlander, Chansky, & Brady, 1992 for a review). Given these similarities in treatment components, the high co morbidity between anxiety and depression in children, and the identified risk factor of anxiety for the development of depression, it would appear somewhat artificial to focus solely on anxiety. Moreover, if a single program can reduce levels of both anxiety and depression, the cost effectiveness of employing such interventions is further strengthened.

Lastly, a detailed review of the literature also shows that, program acceptability has been largely ignored by applied researchers in general, and by researchers working with children and adolescents in particular (Barrett, Shortt, Fox, & Wescombe, 2001; Foster & Marsh, 1999; Moncher & Prinz, 1991; National Mental Health Working Group, 1996; Schwartz & Baer, 1991). Traditional outcome research has paid considerable attention to other key methodological issues (eg. experimental design, reliability of measurements, and statistical power) but has more often assumed, rather than

demonstrated the acceptability of (or consumer satisfaction with) treatment procedures (Barrett, Shortt, Fox, & Wescombe, 2001). Program acceptability is important given that consumer reactions regarding the ease of understanding and the utility of program components are important aspects of treatment development and clearly warrants increased research attention.

In sum, the purpose of this study is to evaluate the outcomes for children involved in a teacher implemented universal anxiety prevention program. Specifically, this study sought to examine whether children involved in the program benefited from being members of the group in terms of reductions in anxiety and depression problems as measured by self-report, parent report, and diagnostic outcomes. This study also aims to explore gender effects in the effectiveness of the intervention as well as evaluate levels of social acceptance of the program from children, parents and teachers involved. As such, it was hypothesised that;

- The intervention group will evidence statistically and clinically reduced rates of self-reported anxiety and depressive symptoms and diagnoses, compared with the participants in the comparison group.
- Participants (children, parents and teachers) in the FRIENDS intervention will rate the program as acceptable and useful as measured by a social validity questionnaire.

Method

Participants:

Five hundred and ninety four children (314 females and 280 males) aged between 10-13 years were recruited from grades five to seven, from seven Catholic schools in the

Brisbane metropolitan area. Children and their parents were allocated to the intervention or monitoring condition on the basis of their school. Of the initial nine schools invited to participate, two schools dropped out (one due to a teacher's interpersonal crisis, the other due to new staffing arrangements). This resulted in 432 children (234 females and 198 males) in the FRIENDS intervention condition and 162 children (80 females and 82 males) in the monitoring condition. Parents of these children were also invited to participate in three parent evenings (the family component).

Participating schools were recruited with the assistance of school guidance officers following an initial in-service training day on anxiety. Schools selected for approach were representative of varying levels of socio-economic advantage. School guidance officers were provided with an information package outlining the FRIENDS anxiety prevention research project and encouraged to discuss potential participation with their principals.

Interested schools were contacted and meetings were set up to provide additional information on the project alongside standard implementation issues. All schools were coeducational, and the majority of children attending these schools (and living in Brisbane in general) were from white, Anglo-Saxon families, with English being their primary language.

Measures

All children and parents completed a battery of self-report questionnaires at three different points in time (pre-intervention, post-intervention and 12-month follow-up). These measures are detailed below;

Spence Children's Anxiety Scale (SCAS: Spence, 1997)

The SCAS is a 45 item child self report measure designed to evaluate symptoms relating to separation anxiety, social phobia, obsessive-compulsive disorder, panic attack and agoraphobia, generalised anxiety, and fear of physical injury for 8-12 year olds. Children were asked to rate, on a 4-point scale ranging from *never (0)* to *always (3)*, the frequency with which they experienced each symptom. This measure was selected due to its ability to reliably discriminate clinically anxious children from non-anxious controls, and because the scale was normed on an Australian population. The clinical cut-off for this scale is 42.48 (Spence, 1994). Sound psychometric properties have been achieved and reported by Spence (1997, 1998). Specifically this measure has been found to have high internal consistency ($r = .92$), high split half reliability ($r = .90$), adequate test-retest reliability ($r = .60$), as well as showing good convergent and divergent validity.

Revised Children's Manifest Anxiety Scale (RCMAS: Reynolds & Richmond, 1978)

The RCMAS provides a measure of a child's chronic anxiety and is commonly used in previous research. The questionnaire contains 37 items, nine of which form a Lie scale. For each item, the child is asked to respond "yes" or "no". This measure has been found to have high internal consistency and test-retest reliability, as well as showing convergent and divergent validity (James, Reynolds, & Dunbar, 1994; Reynolds & Richmond, 1985; Wisniewski, Mulick, Genshaft, & Coury, 1987).

Children's Depression Inventory (CDI; Kovacs, 1981)

The CDI is the most widely used measure of childhood-depressed affect (Cole & Turner, 1993), and has extensive support for its reliability and validity in children from

ages 7 to 17 years (e.g. Saylor, Finch, Spirito, & Bennett, 1984). The CDI consists of 27 items whereby each item consists of three statements of different severity, and requires the child to choose one statement that best describes him or her. Each item is scored from 0-2, and the sum of all item scores yields the total CDI score. Therefore, scores range from 0-54, with higher scores indicating more depressive symptoms. For the CDI, previous research has suggested that scores above 17 indicate a high likelihood of significant depressive symptomatology (Craighead, Curry & Ilardi, 1995; Kazdin, 1989; Smucker, Craighead, Craighead & Gree, 1986)

Anxiety Disorders Interview Schedule for Children (ADIS-C third edition; Silverman & Albano, 1997)

The diagnostic categories of the ADIS-C correspond to those used in the DSM-IV (American Psychological Association, 1994). In addition to a diagnosis, a clinical severity rating is also given based on the child's interference ratings, total symptoms endorsed, and clinician assessment of level of disturbance and disability produced. The scale ranged from 0 (none) to 8 (very severely disturbing/disabling). Although parallel parent forms of the ADIS are available, resources for the present study were not sufficient to enable both parent and child versions to be conducted. The extensive use of this instrument in research has facilitated communication between different groups of researchers. Research indicates that ADIS-C provides reliable and valid assessment of symptoms across multiple symptom domains (Silverman & Eisen, 1992). Inter-rater reliability of the ADIS-C has been shown to be moderate to high (Cobham, Dadds, & Spence, 1998; Rapee, Barrett, Dads, & Evans, 1994; Spence, Donovan, & Brechman-

Toussaint, 1999) with kappa coefficients for anxiety disorder categories ranging from .82 to .96.

The Child Behavior Checklist- Revised (CBCL-Revised; Achenbach, 1991)

Parents were asked to complete the CBCL-Revised. This measure is 118 items in length, with parents' rating each item on a 3-point scale. For these items, a total problem behaviour score can be derived, as well as several subscale scores, and scores on two dimensions of dysfunction: Internalising and Externalising. Only the internalising and Externalising scale scores were used in this study. Research has shown these scales to be psychometrically sound, with high test-retest reliability and internal consistency reported (Achenbach & Edelbrock, 1991). Support for the content, construct and criterion-related validity of the CBCL has also been found (Achenbach & Edelbrock, 1991).

Treatment acceptability measures.

Additional ratings were collected at the end of the intervention in order to further assess the social acceptability of the intervention for participants, parents, and their teachers, a factor that is often ignored by other researchers. To ensure anonymity and encourage participants the freedom to respond as honestly as possible, they were not asked to write any identifying information on the questionnaires.

FRIENDS Child Social Acceptability Measure (Barrett, Lowry-Webster, Turner & Johnson, 1998)

Children were asked to rate how much they enjoyed the FRIENDS program (1 – A lot, 2 – Some, 3 – A little, 4 – Not at all), how much they learnt about feelings and how to cope with them (1 – A lot, 2 – Some, 3 – A little, 4 – Nothing at all), and how often they use the skills taught during the FRIENDS program (1 – All the time, 2 – Some of the

time, 3 – Not very often, 4 – Not at all) (see appendix F). Participants were also asked to indicate which activities from the FRIENDS program they found most useful.

FRIENDS Parent Social Acceptability Measure (Barrett, Lowry-Webster, Turner, & Johnson, 1998)

This measure was a questionnaire focusing on the parents' final evaluation of the FRIENDS program using a 5-point scale from 1 (not useful/ not important/not at all) to 5 (very useful/ very important/ a lot). The first set of three items related to how useful and important parents rated programs such as the FRIENDS program. The next set of four items asked parents to rate how enjoyable and helpful FRIENDS was in enhancing both the child's and parents coping skills and how much they felt their child had learnt during the program. The final three questions asked parents how often they, along with their children, used the skills taught in the FRIENDS program (see appendix F).

FRIENDS Teacher Acceptability Measure (Barrett, Lowry-Webster, Turner, & Johnson 1998)

This measure was designed to assess teachers' acceptance of, and experiences with, the FRIENDS program. Participants were required to circle the response that best reflected their answer using a four point likert scale. The measure consisted of nine items related to their perceived usefulness of the program for children, how much they perceived children learnt about feelings and how to cope, the ease of implementing the program into their setting, and how well the program complimented their existing school curriculum (see appendix F).

Procedure

A letter including a consent form and the CBCL-R (Achenbach, 1991) was sent to all parents of children in grades 5-7 at participating schools, outlining the aims and objectives of the research project (see appendix G). As the program was a universal program, a good level of consent was received for each condition (97.2% of intervention, 98.6% of control condition). Following the return of consent forms, teacher training and child pre-intervention assessments were implemented.

Pre-intervention assessments (referred to forthwith as PRE) involved the completion of self-report measures by all participating children.^α This phase took place within normal class time. Postgraduate psychology students ran the class assessment sessions with the following standard instructions:

“Most of you would have heard a little about the research project run by Griffith University currently in your school. Today we are going to be giving you a number of questionnaires to complete. These questionnaires help us to understand a little more about how kids think and how kids feel. So it is important that you answer each question as honestly as you can. These questionnaires are not a test so there are no right or wrong answers. Also what you write down is confidential (check for understanding). I will read out the instructions for each questionnaire and read out the questions aloud so we can all keep up at the same pace. If you get stuck on a question or need some help raise your hand and one of us will come around to help you. It is important that you

^α Teacher reports were initially planned in order to examine intervention effects from multiple informants. However this had to be ruled out given the feedback from schools concerned about the large amounts of time teachers would need to complete assessments for every child in their classroom at three different points in time which would compromise their ability to participate in the research.

don't share or discuss your answers with the person next to- we are just interested in how you think and feel. Any questions?"

To control for reading difficulties and to prevent children missing or skipping questions, the post graduate student facilitating the assessment session read the instructions and questions aloud to all students.

Teacher Training Workshop

Initial training was conducted by the current author, which involved an intensive full-day workshop (described in detail in chapter 5). Seventeen teachers (7 males and 10 females) representing the four intervention schools participated in the full day teacher training workshops. The number of years experience in the profession ranged from 3 to 30 years ($\bar{X} = 12.29$, $SD = 6.67$). Topics for training included; anxiety disorders and their risk factors, principles of prevention, a step by step guide through the FRIENDS program (Barrett, Lowry-Webster, & Holmes, 1999), ethical issues involved with running groups with children, and group leader and group process skills (encouraged through role plays and experiential exercises). All training manuals, training aids, handouts, exercises, discussion questions, videos and overheads were standardized across training workshops via a training manual and resource kit (Barrett, Lowry-Webster, & Holmes, 1998c).

Group Leaders each received a copy of the *Friends for Children Group Leader Manual - Edition II* (Barrett, Lowry, & Holmes, 1999a). The manual describes the goals and strategies for each session, the desired outcomes, and the specific exercises to be used in meeting these outcomes. Random videotaping of the sessions and self-ratings of integrity using the FRIENDS integrity checklist were conducted to ensure program

integrity and no significant departures from the prescribed program manual were noted (see Chapter 5 for further details).

Intervention Group (FRIENDS)

Following pre- intervention screening and teacher training the FRIENDS program (Barrett, Lowry-Webster & Holmes, 1997a-f) was commenced in the intervention schools. The FRIENDS program was implemented routinely as part of the school curriculum to whole classes of children during normal school hours. Specifically, the intervention was scheduled to run for 75 minutes during usual Pastoral care/or social studies classes for 10 weeks, with one session held each week. The FRIENDS program also comprised of two booster sessions implemented at one month and three months following the initial intervention.

The FRIENDS program originated from the *Coping Koala* anxiety treatment program (Barrett, Dadds & Rapee, 1991) and Kendall's (1990) *Coping Cat* anxiety treatment program. The Coping Koala and its original source have been described in detail elsewhere (Barrett et al, 1996; Kendall, 1994; Kendall & Treadwell, 1996). The FRIENDS prevention program is a family based CBT program, which teaches children strategies for coping with anxiety and challenging situations within a group format. These strategies centre on the FRIENDS plan, which incorporates physiological, cognitive and behavioural coping strategies. The word FRIENDS is an acronym, which assists participants to remember the coping steps to take; F, for what am I Feeling? R for learning to Relax and feel good, I for Innner thoughts, E for Explore plans of action, N for Nice work reward yourself, D for Don't forget to practise, and lastly S for Stay cool and calm! While retaining the core component of CBT for childhood anxiety (exposure,

relaxation, cognitive strategies and contingency management), the FRIENDS program also has a number of unique features. Firstly, the FRIENDS program emphasises peer support and peer learning. Children are encouraged to make friends and to build their social support networks. Secondly, the program includes attentional training for children, a procedure used in the treatment with adults with anxiety problems (Rapee & Sanderson, 1998; Wells, 1997), and encourages children to make internal attributions about their accomplishments. Participants were each given a *Friends for Children Workbook* (Barrett, Lowry, & Holmes, 1999b)⁷. The workbook allowed participants to apply each of the skills taught to their own life situation. Group processes were used to help children learn positive strategies from each other, and reinforce individual efforts and change. To generalise the skills introduced in the sessions, homework tasks were assigned to each session, and participants were required to bring completed home activities to the following sessions.

FRIENDS for parents

The trained classroom teachers also conducted three parent sessions at their school. These sessions were conducted at separate times to the child program, at a time convenient to their individual school setting. Sessions one and two addressed what the children were learning in the FRIENDS program. Parents were encouraged to practise the skills learned in the FRIENDS program as a family, on a daily basis. In this session parents were also shown how they could use these skills to manage their own anxiety. Session three introduced parents to child management skills, and how to use these skills to manage their child's anxiety (e.g., reinforcement skills, planned ignoring, giving and

⁷ Intervention schools actually included the FRIENDS for children workbook on their booklists at the beginning of the school term for all parents to purchase alongside usual school curriculum books.

backing up clear instructions). The family skills component also includes partner support training and encourages families to build supportive social networks.

Immediately after the FRIENDS intervention (referred to forthwith as POST), and again 12 months later (referred to forthwith as LT follow-up), both groups were re-contacted to collect the same dependent measures as outlined above. Given the enormity of the universal sample within the proposed research, children's diagnostic status was measured using a long-term follow-up only design with children by administering the ADIS-C (Silverman & Albano, 1997). Children were selected based on their pre-intervention self-report scores. Initially, children scoring above the clinical cut-off for anxiety of 42.48 on the SCAS (Spence, 1994) or above the suggested cut-off for depression (above 17 CDI) at pre-intervention were to undergo diagnostic interviews ($N = 118$). However due to time and resource restraints, it was decided to only interview those children who scored above the cut-off on *both* measures ($N = 62$). This was supported by recent findings which found that children with comorbid disorders at pre-test were more likely to retain an anxiety diagnosis at post-test and follow-up if left untreated (Shortt, 2000).

To ensure reliable diagnoses, a psychologist naïve to the interviewer's diagnoses, and school allocation (i.e. intervention school versus control school) reviewed 27% of the audio-taped interviews and made independent diagnoses. Accuracy of inter-rater reliability was calculated for diagnoses categorised as either no diagnosis, anxiety disorder or other diagnosis. This yielded kappas of .89.

Monitoring Comparison Group

The monitoring comparison groups received no intervention but were told that they would be contacted for monitoring in 10 weeks and then at 1-year follow-up as a means to understand more about anxiety and fears during childhood. Safeguards were built into this design so that individual help was always available if needed. Appendix H outlines the ethical handling procedures for children identified with an anxiety diagnosis.

Results

Prior to statistical analyses, the data was screened for the presence of outliers and violations of the assumptions of analyses conducted. Results of evaluation of assumptions of normality, homogeneity of variance, homogeneity of variance – covariance matrices, linearity and multicollinearity were satisfactory. Given the nonclinical nature of the sample, positive skew was observed in all of the dependant measures, however this was not adjusted as it was considered to accurately represent the characteristics of the population.

Group Comparability

Preliminary analyses were conducted to ensure the equality of groups at pre-intervention. Chi square analyses revealed that there were no significant differences for gender $\chi^2(1) = 0.29$, ns. T-tests analysing the dependent variables revealed no significant differences between the groups on the SCAS $t(564) = 1.66$, ns, however there was a significant difference found between the groups on the RCMAS $t(564) = 3.58$, $p < .05$ and on the CDI $t(564) = 2.66$, $p < .05$ with the monitoring group receiving higher scores on both these measures.

Effects of Intervention on the Self-Report Measures

Table 6.1 presents the means and standard deviations for the child self-report measures. To examine the immediate effect of treatment on the self-report measures and control for pre intervention differences on two of the dependent variables, a 2 (Condition: Intervention vs. monitoring control) x 2 (time: pre-treatment vs. post treatment) repeated measures ANCOVA was used⁸. The two covariates used in this analysis were the CDI and the RCMAS. Covariates were judged to be adequately reliable for covariance analysis (Tabachnick & Fidell, 2001).

After analysing universal effects (for all children), children were also stratified into two groups for additional analyses on the basis of their pre-treatment SCAS scores: high anxiety (those children scoring the clinical cut-off of 42.48 and above), and low anxiety (those children scoring below 42.48). This was to enable an independent examination of the benefits of being involved in the program for children with high levels of anxiety. Because those children in the intervention group with low levels/no anxiety at pre-treatment are presumed to exhibit marginal or no change at post treatment, the lack of change in their results on all self report measures could mask the overall benefits for children with high levels of anxiety at pre-intervention. Hence by stratifying children into two groups, the benefits for the highly anxious group can be more accurately evaluated.

From pre to post intervention for scores for all children on the SCAS, the repeated measures ANCOVA shows that both the CDI and RCMAS were significant covariates

⁸ Due to timetabling constraints of schools, a number of children failed to complete all questionnaires in the time allocated. As such, ANCOVAs were the chosen statistics over MANCOVAs. Specifically, because MANCOVA deleted those participants from the analyses if they did not complete all the dependent measures, thus there was more data retained with ANCOVA (Huberty & Morris, 1989). As such, Bonferroni corrections were applied to control for type I error.

Table 6.1.

Mean Scores on Child Self-Report Measures at Pre-intervention, Post-intervention and 12 month follow-up

Measure	PRE		POST		12MTH F.U	
	Intervention	Control	Intervention	Control	Intervention	Control
SCAS						
(Universal)						
<i>M</i>	28.09	31.45	18.33	28.23	16.66	27.54
<i>SD</i>	18.45	14.76	14.07	17.80	13.91	20.06
SCAS						
(High Anx)						
<i>M</i>	57.61	53.61	31.83	45.87	31.55	45.52
<i>SD</i>	14.51	7.42	14.98	22.24	15.11	26.72
RCMAS						
(Universal)						
<i>M</i>	10.87	13.79	7.35	9.52	7.56	10.25
<i>SD</i>	7.19	10.20	6.62	6.37	6.39	6.17
RCMAS						
(High Anx)						
<i>M</i>	19.14	19.63	13.10	13.06	11.95	13.33
<i>SD</i>	5.25	4.45	6.67	6.66	6.62	6.00
CDI						
(Universal)						
<i>M</i>	9.74	12.42	9.97	11.64	9.99	13.02
<i>SD</i>	8.59	8.18	9.39	9.61	8.51	10.02
CDI						
(High Anx)						
<i>M</i>	18.26	16.65	11.99	14.46	11.84	15.78
<i>SD</i>	8.44	5.71	7.16	9.29	7.26	8.72

Note. SCAS = Spence Children's Anxiety Scale; RCMAS = Revised Children's Manifest Anxiety Scale; CDI = Children's Depression Inventory

for the within subjects effects (CDI; $F(1, 521) = 7.86, p < .05, \eta^2 = 0.01$ ⁹ and RCMAS; $F(1, 521) = 25.65, p < .05, \eta^2 = 0.04$) as well as the between subject effects (CDI; $F(1, 521) = 63.30, p < .05, \eta^2 = 0.10$. RCMAS; $F(1, 521) = 106.69, p < .05, \eta^2 = 0.17$). The ANCOVA also revealed a significant time x intervention condition interaction, $F(1, 521) = 34.64, p < .05, \eta^2 = 0.62$, a significant main effect for group $F(1, 521) = 7.65, p < .05, \eta^2 = 0.01$, but not for time $F(1, 521) = 1.55, ns, \eta^2 = .003$. Univariate analyses were consequently conducted to examine this interaction with a significance level of .016 applied on the basis of Bonferroni corrections. Results indicated that scores on the SCAS for children in the intervention group significantly decreased from pre to post treatment $t(391) = 12.87, p < .016$, as did the control group $t(138) = 2.62, p < .016$. An independent samples t-test conducted at post treatment indicated that this decrease was significantly greater for the intervention group than the comparison group $t(545) = 6.59, p < .016$.

When examining the effects for the high anxious group the ANCOVA shows that only the RCMAS covariate was significant for the within subject effects $F(1, 99) = 7.372, p < .05, \eta^2 = 0.06$, while the CDI covariate was non significant $F(1, 99) = 0.00, ns, \eta^2 = 0.00$. In terms of the between subjects effects, only the CDI covariate was significant $F(1, 99) = 5.19, p < .05, \eta^2 = 0.05$, and not the RCMAS covariate $F(1, 99) = 3.03, ns, \eta^2 = 0.03$. The ANCOVA also revealed a significant time x intervention interaction, $F(1, 99) = 20.75, p < .001, \eta^2 = 0.17$, and a significant main effect for group, $F(1, 99) = 5.88, p < .05, \eta^2 = 0.56$, but not for time $F(1, 99) = .154, ns, \eta^2 = 0.002$. Follow up univariate analyses were conducted with a significance level of .025 applied on the basis of Bonferroni corrections. Paired sample t tests revealed that the comparison group

⁹ η^2 = effect size. Cohen (1988) suggests the following interpretive guidelines for η^2 : small $\eta^2 = .01$, medium $\eta^2 = .06$ and large $\eta^2 = .16$.

condition did not change significantly across time $t(30) = 1.94$, ns, while the scores for the intervention group decreased significantly from pre to post test $t(30) = 13.18$, $p < .025$.

In regard to the universal CDI, the repeated measures ANCOVA revealed that the RCMAS was a significant covariate both for the within subjects effects $F(1, 517) = 15.47$, $p < .05$, $\eta^2 = 0.02$, and the between subjects effects $F(1, 517) = 105.57$, $p < .05$, $\eta^2 = 0.17$. The ANCOVA also shows no significant interaction, $F(1, 517) = 0.18$, ns, $\eta^2 = 0.00$ or group effects $F(1, 517) = 2.05$, ns, $\eta^2 = 0.00$. However a significant effect for time was found $F(1, 517) = 7.84$, $p < .05$, $\eta^2 = 0.01$ with higher scores found at pre intervention than post intervention. When examining the effects for the high anxious group, the within subjects covariate (RCMAS) was non significant $F(1, 93) = 1.10$, ns, $\eta^2 = 0.01$, while this same covariate was significant for the between subjects effects $F(1, 93) = 19.24$, $p < .05$, $\eta^2 = 0.17$. The ANCOVA revealed a significant interaction $F(1, 93) = 4.25$, $p < .05$, $\eta^2 = 0.44$, but no significant effects for time $F(1, 93) = 0.01$, ns, $\eta^2 = 0.00$ or group $F(1, 93) = 0.01$, ns, $\eta^2 = 0.00$. Follow up univariate analyses with the Bonferroni adjusted significance level of .025 applied, revealed that the comparison group condition remained stable across time $t(25) = 1.12$, ns, while the scores for the intervention group decreased significantly $t(70) = 6.21$, $p < .025$.

In terms of the RCMAS at the universal level, the ANCOVA revealed that the CDI covariate was significant for the within group effects $F(1, 520) = 6.68$, $p < .05$, $\eta^2 = 0.01$, and the between group effects $F(1, 520) = 190.97$, $p < .05$, $\eta^2 = 0.26$. The repeated measures ANCOVA also revealed a non significant interaction $F(1, 520) = 0.48$, ns, $\eta^2 = 0.00$. However the effect for time was significant $F(1, 520) = 27.02$, $p < .05$, $\eta^2 = 0.04$ with higher scores found at pre intervention than post intervention. The group effect was

also significant $F(1, 520) = 7.84, p < .05, \eta^2 = 0.02$, with the intervention group reporting lower scores at both phases. Lastly when examining the effects for the high anxious group, the CDI covariate was non significant for the within subjects effects $F(1, 94) = .18, ns, \eta^2 = 0.00$, however it was significant when looking at the between subjects effects $F(1, 94) = 16.69, p < .05, \eta^2 = 0.15$. The ANCOVA also revealed that neither the interaction $F(1, 94) = .16, ns, \eta^2 = 0.00$, or condition effects $F(1, 94) = 0.63, ns, \eta^2 = 0.00$ were significant. However a significant effect for time was found $F(1, 94) = 11.64, p < .05, \eta^2 = 0.11$ with lower scores found at post intervention than at pre-intervention.

Chi square analyses were used to examine the effects of gender on treatment outcome at post-treatment using level of anxiety (SCAS) as the dependent measure. There were no significant gender effects universally, $\chi^2(1) = 0.10, n.s$ or for the high anxious group, $\chi^2(1) = 0.50, ns$.

Table 6.2 presents the means for the control and intervention groups on the CBCL (by parents). No significant effects were found for the internalising scale from pre to post test; interaction $F(1, 302) = .50, ns, \eta^2 = .002$, condition $F(1, 302) = .006, ns, \eta^2 = .00$, phase $F(1, 302) = .06, ns, \eta^2 = .002$. Similarly, no significant effects were found for the externalising scale from pre to post test, interaction $F(1, 302) = .38, ns, \eta^2 = .001$, condition $F(1, 302) = .16, ns, \eta^2 = .001$, phase $F(1, 302) = 2.74, ns, \eta^2 = .009$.

Risk Analyses

To further evaluate the effectiveness of the program, chi square analyses were conducted on the SCAS to examine the risk status of children at pre and post intervention. Using the SCAS clinical cut-off of 42.48 (Spence, 1997) participants were dichotomously divided into “at risk” or “healthy” groups on the basis of their pre and

post intervention scores. This produced four separate groups; (1) Healthy at pre and post; (2) Healthy at pre but at risk at post; (3) At risk at pre but healthy at post; and (4) At risk at pre and post.

Table 6.2

CBCL scores for the Intervention and Control Groups at Pre and Post test and at 12 month Follow-up

Time and group	Internalising T score		Externalising T score		N
	M	SD	M	SD	
Preintervention					
Control	55.03	12.31	46.58	11.16	33
Intervention	55.82	12.62	47.85	9.82	271
Postintervention					
Control	54.97	13.06	45.55	12.30	33
Intervention	54.50	12.15	45.59	10.53	271
12 Month Follow-up					
Control	55.22	13.35	46.77	14.61	32
Intervention	53.92	11.41	46.10	10.31	251

A significant relationship between risk status and treatment group was found χ^2 (3) = 12.28, $p < .05$ when looking at the results for all children using the SCAS clinical cut-off of 42.48 (see table 6.3 for percentages). In particular a greater percentage than expected remained at risk in the comparison group. Similarly, when looking at the results for only those children at risk at pre-test (i.e. the high anxious group), a significant relationship between risk status and treatment group was also found χ^2 (1) = 9.05, $p < .05$ (see table 6.4 for percentages). Once again a greater percentage than expected remained

at risk in the control group. Notably 75.3% of children in the intervention group who were at risk at pre-test were no longer at risk at post-test, compared to 54.8% of children who were at risk at pre-test in the comparison group and who remained at risk at post test.

Table 6.3.

Risk status of all children at pre and post intervention

Risk Status	Intervention Group (<u>N</u> = 392)	Control Group (<u>N</u> = 139)
Percentage of children not at risk at pre-test or post-test	78.3% (<u>N</u> = 307)	73.4% (<u>N</u> = 102)
Percentage of children at risk at pre-test but not at post-test	14.8% (<u>N</u> = 58)	10.1% (<u>N</u> = 14)
Percentage of children who were not at risk at pre-test but were at risk at post-test	2.04% (<u>N</u> = 8)	4.3% (<u>N</u> = 6)
Percentage of children who were at risk at pre-test and post-test (i.e. remained at risk)	4.8% (<u>N</u> = 19)	12.2% (<u>N</u> = 17)**

* $p < .05$ ** $p < .01$

Table 6.4.

Risk analyses for those children at risk at pre-test

Risk Status	Intervention Group (<u>N</u> = 77)	Control Group (<u>N</u> = 31)
Percentage of children at risk at pre-test but not at post-test	75.3% (<u>N</u> = 58)	45.2% (<u>N</u> = 14)
Percentage of children who were at risk at pre-test and post-test (i.e. remained at risk)	24.7% (<u>N</u> = 19)	54.8% (<u>N</u> = 17)**

* $p < .05$ ** $p < .01$

Relationship Between Anxiety and Depression

Of the 594 participants, 118 (19.9%) were above the clinical cut-off of 42.48 for anxiety on the SCAS at pre-intervention, of these, 82 were females and 36 were males. One hundred and forty three children (24.1%) were above the clinical cut-off of 17 for depression on the CDI, with 80 females and 62 males making up this sample. Sixty-two children (10.4%) were above the clinical cut-off for both anxiety and depression, of these 44 were females and 17 were males. To further explore the relationship between anxiety and depression, a simple regression analysis was conducted. This revealed a moderate positive linear correlation between anxiety and depression at pre-intervention of $r = .53$. This significant relationship accounts for 27.7% of the variance $F(1, 568) = 218.94$, $p < .05$.

Intervention Maintenance (12 month follow-up)

To examine the durability of intervention effects a 2 (condition: intervention vs. waiting list control) x 2 (time: posttreatment vs. 12 month follow-up) repeated measures ANOVA was used. From post – 12-month follow-up for scores for all children on the SCAS, a non significant group by time interaction $F(1, 468) = .29$, ns., $\eta^2 = .001$ was found. However, a main effect for time $F(1, 468) = 7.10$, $p < .05$, $\eta^2 = .02$ and group was found $F(1, 468) = 50.05$, $p < .05$, $\eta^2 = .10$. Comparison of means showed scores for the intervention group to be lower than the scores for the control group at both phases, and 12-month follow-up scores to be lower than post-test scores.

When examining the effects for the high anxiety group, the repeated measures ANOVA revealed no significant interaction $F(1, 90) = 1.10$, ns., $\eta^2 = .01$.) or phase effect $F(1, 90) = .24$, ns., $\eta^2 = .01$. However a significant effect for group was found $F(1, 90) =$

13.84, $p < .05$, $\eta^2 = 0.13$. Examination of the means indicated that the intervention group scored lower on the SCAS at both post intervention and 12-month follow-up, indicating that the intervention group maintained its superiority over time.

On the CDI, the repeated measures ANOVA revealed no significant interaction $F(1, 459) = 2.79$, ns, $\eta^2 = .006$, or effect for time $F(1, 459) = 1.16$, ns, $\eta^2 = .003$. However a significant effect for group was found $F(1, 459) = 7.21$, $p < .05$, $\eta^2 = .02$ with the intervention group scoring lower scores at both phases. When examining the effects for the high anxious group the repeated measures ANOVA revealed no significant interaction $F(1, 82) = 2.06$, ns, $\eta^2 = .02$ or phase effect $F(1, 82) = .05$, ns, $\eta^2 = .00$, however the condition effect was significant $F(1, 82) = 4.31$, $p < .05$, $\eta^2 = .05$ with the intervention group reporting lower scores than the control group at both phases indicating that the intervention group maintained its superiority over time.

From post to 12 month follow-up on the RCMAS the repeated measures ANOVA revealed no significant interaction $F(1, 462) = .53$, ns, $\eta^2 = .001$ or phase effect $F(1, 462) = 1.48$, ns, $\eta^2 = .003$. However a significant main effect for group was found $F(1, 462) = 16.78$, $p < .05$, $\eta^2 = .04$. with the intervention group scoring lower at both phases. When examining the effects for the high anxious group, the repeated measures ANOVA revealed no significant effects; interaction $F(1, 85) = 2.35$, ns, $\eta^2 = .03$, group $F(1, 85) = .07$, ns, $\eta^2 = .00$, time $F(1, 85) = .01$, ns, $\eta^2 = .00$.

12 Month Follow-up Risk Analyses

To further evaluate the effectiveness of the program, chi square analyses were again conducted on the SCAS to examine the risk status of children from post to 12-month follow-up. A significant relationship between risk status and treatment group was

found $\chi^2(3) = 26.08, p < .05$ when looking at the results for all children from post intervention to 12 month follow-up (see table 6.5). In particular a greater percentage than expected progressed to 'at risk' at 12 month follow up in the control group and a greater percentage than expected remained at risk in the control group.

Table 6.5

Risk status of all children at post-test and 12 month follow-up

Group	Not at risk at Post or 12 F/U	Not at risk at Post but at risk at 12 F/U	At risk at Post but not at 12 F/U	At risk at Post and 12 F/U
Control (N = 131)	74.8%	7.6%**	5.3%	12.2%**
Intervention (N = 339)	91.4%	1.5%	3.2%	3.8%

* $p < .05$ ** $p < .01$

In terms of the CBCL (parent version), no significant effects for the internalising scale from post to 12 month follow-up were found; interaction $F(1, 281) = .005, ns, \eta^2 = .00$, condition $F(1, 281) = .39, ns, \eta^2 = .00$ or phase $F(1, 281) = .73, ns, \eta^2 = .003$.

Similarly no significant effects were found for the externalising scale from post to 12 month follow up; interaction $F(1, 390) = .34, ns, \eta^2 = .001$, condition $F(1, 280) = .004, ns, \eta^2 = .00$ or phase $F(1, 280) = 1.84, ns, \eta^2 = .00$. To determine whether there was delayed effects in children's improvement over time (i.e. from pre-test to 12 month follow-up) a second 2(condition: intervention vs. waitlist control) x 2 (pre-test vs. 12

month follow-up) repeated measures ANOVA was conducted. On the internalising scale no significant interaction $F(1, 311) = 1.90$, ns, $\eta^2 = .006$ or condition effect $F(1, 311) = .27$, ns, $\eta^2 = .001$ was found. However a significant main effect for time was found $F(1, 311) = 7.74$, $p < .05$, $\eta^2 = .02$ with both group scoring lower on the internalising scale across time. In terms of the externalising scale no significant effects were found; interaction $F(1, 310) = 3.36$, ns, $\eta^2 = .01$, condition $F(1, 310) = .79$, ns, $\eta^2 = .003$ or phase $F(1, 310) = 1.02$, ns, $\eta^2 = .003$. There were no significant differences found for children whose parents returned the CBCL for each of the three assessment phase on level of anxiety severity $\chi^2(1) = 1.86$, n.s, however significant differences between the rate of return of parent questionnaires existed between the intervention and control group, with higher percentages found in the intervention group $\chi^2(1) = 50.10$, $p < .001$.

Follow-up Diagnostic Interviews

Diagnostic interviews were conducted at 12-month follow-up with all children scoring above the clinical cut off for anxiety (42.48 SCAS) and depression (above 17 CDI) at pre-intervention. This resulted in 62 children (45 from the intervention group and 17 from the control group). Six parents refused consent for their child to undergo diagnostic interviews (9.7%), (five children from the intervention group, and one child from the control group). The remaining 56 children entered into the diagnostic interviews. Table 6.6 shows the primary Axis 1 and secondary diagnosis for the 56 children based on the child ADIS- C (Silverman & Albano, 1997). Notably, one third (33%) of children with a primary anxiety disorder also had a secondary anxiety problem. The children with a primary diagnosis of depression ($N = 2$) had a secondary anxiety

problem. Moreover, of those diagnosed with a DSM-IV disorder, 47% had a comorbid diagnosis.

Table 6.6.

Numbers and percentages of children with primary DSM-IV diagnoses at 12 month follow-up in intervention and control groups.

Diagnosis	Control Group (N = 16)		Intervention Group (N = 40)	
	N	%	N	%
<i>Primary Diagnosis</i>				
Social Phobia	5	31.3	1	2.5
Specific Phobia	2	12.5	3	7.5
Generalised Anxiety Disorder	4	25.0	0	0
Major Depressive Disorder	0	0	1	2.5
Dysthymia	0	0	1	2.5
Total: any anxiety problem	11	68.8	4	10
Total: Other diagnoses	0	0	2	5
<i>Secondary Diagnosis</i>				
Social Phobia	1	6.3	1	2.5
Specific Phobia	2	12.5	1	2.5
Generalised Anxiety Disorder	0	0	1	2.5
Major Depressive Disorder	0	0	0	0
Dysthymia	1	6.3	0	0
Total: any anxiety problem	3	18.8	3	7.5
Total: Other diagnoses	1	6.3	0	0

Overall, 85% of children in the intervention group who were scoring above the clinical cut-off for anxiety and depression were diagnosis free in the intervention condition at 12-month follow-up compared to only 31.2% of children in the control group, $\chi^2 (1) = 15.6, p < .01$.

Attrition

Students were frequently away or absent from class and were not exposed to the entire program or assessment sessions. As no specific measures were made of group

session attendance, attrition in the current study was defined as any child who was absent from any of the assessment times. The rate of attrition was 21% over 12 months and did not differ by intervention status $\chi^2(1) = .54$, n.s. Retained children did not differ from those who were not retained on age $\chi^2(4) = 1.84$, n.s., gender $\chi^2(1) = .74$, n.s, or severity of anxiety or depressive symptomatology $\chi^2(1) = .002$, n.s.

FRIENDS Program Acceptability Measures

The FRIENDS program received positive evaluations from children, parents and teachers alike. Tables 6.7 – 6.9 presents the acceptability of the FRIENDS program as rated by children, their parents, and teachers. Sixty-six percent of children said they would sometime or often use the skills they learnt in the FRIENDS program. In regards to how much they learnt about coping with worries, 37% reported learning a lot and 48.8% reported learning some. No child reported learning nothing from participation in the FRIENDS program. In terms of how enjoyable they found the program, 84.8% of children rated the program as somewhat enjoyable or higher.

In regards to parental ratings ($N = 181$), 70.7% of parents rated the FRIENDS program as somewhat useful or very useful in terms of enhancing their child's coping skills. Parents' ratings of how useful each skill taught was to their child are displayed in table 6.10 along with child ratings of usefulness. Parents rated all the skills taught in the FRIENDS program as useful but 'recognising feelings in others' (endorsed by 68.5% of the sample) was rated as most useful. This was followed by 'recognising feelings in self' (64.1%) and the cognitive skills of 'changing negative thoughts into helpful thoughts' (61.9%) and thinking helpful thoughts (58.3%). This was slightly different to the ratings evidenced by children who rated 'relaxation exercises' (endorsed by 65.2% of the

sample) as most useful, followed by ‘helping others to feel good’ (63.2%). Over half the sample rated problem solving skills (58.6%) and cognitive skills such as thinking helpful thoughts (58.1%) and changing negative thoughts (57.6%) as useful.

In regards to teacher ratings ($N = 17$), the FRIENDS program was rated as acceptable on all aspects measured. Specifically, 88.9% rated the program as very easy to implement, 77.7% rated the FRIENDS program as complimenting existing curriculum, and 72.2% reported that children in their class had learnt “a lot” about how to cope with worries. Table 6.9 presents the teachers’ ratings on each of these dimensions.

Table 6.7

Acceptability of the FRIENDS program as rated by child participants in percentages

($N = 408$)	A lot (%)	Some (%)	A Little (%)	Not at All (%)
How much did you enjoy the FRIENDS program?	31.1	53.7	14.2	1.0
How much did you learn by doing the program with your friends?	30.6	53.9	15.4	0
How much did you learn about feelings?	40.0	46.6	13.0	.5
How much did you learn about how to cope with feeling worried or nervous?	37.0	48.8	13.2	1.0
How often do you use the ideas taught in the FRIENDS program?	14.0	52.9	29.2	2.7

Table 6.8

Acceptability of the FRIENDS program as rated by parents in percentages

(N = 181)	A lot	Some	A Little	Not at All
How useful are positive skills programs in general?	44.8	50.8	4.4	1.0
How useful did you find FRIENDS for enhancing your child's coping skills?	27.1	43.6	28.7	0.6
How important is it for schools to implement programs such as FRIENDS into curriculum?	39.8	52.5	7.7	0
How much did you learn about enhancing your child's coping skills? ¹⁰	20.8	63.5	15.2	0.6
How much do you think your child learnt about coping?	23.2	62.4	14.4	0
How much do you think your child enjoyed the FRIENDS program?	27.1	55.2	16.6	1.1
How often does your child use the skills taught?	13.8	25.2	41.7	19.3

¹⁰ Based on ratings of parents who attended the parent sessions

Table 6.9

Acceptability of the FRIENDS program as rated by teachers in percentages

<u>N</u> = 17	A lot	Some	A Little	Not at All
How useful are positive skills programs in general?	72.2	27.8	0	0
How useful did you find FRIENDS for enhancing children's coping skills in your class?	55.6	44.4	0	0
How much did you learn about enhancing resilience in children?	66.7	33.3	0	0
How much do you think your students learn about coping?	72.2	27.8	0	0
How much do you think your students enjoyed the FRIENDS program?	55.6	44.4	0	0
How easy did you find the FRIENDS program to implement into your classroom?	88.9	11.1	0	0
How well did the FRIENDS program compliment existing curriculum?	77.8	22.2	0	0

Table 6.10

Percentage of children and parents who rated each of the FRIENDS activities as useful

	Useful Skill As rated by Children <u>N</u> = 408 (%)	Useful Skill As rated by Parents <u>N</u> = 181 (%)
Relaxation Exercises	65.2	26.0
Helping Others to Feel Good	63.2	53.0
6 Block Problem Solving Plan	58.6	23.2
Thinking Helpful Thoughts	58.1	58.3
Changing Negative Thoughts	57.6	61.9
Step Plan	57.6	34.8
Recognising Feelings in Self	55.1	64.1
Deep Breathing	48.5	52.5
Recognising Feelings in Others	41.9	68.5

Discussion

In this chapter the importance of school based prevention programs for anxiety disorders has been argued. The specific aims of this study were to examine the remediating effects of the intervention on children's anxiety and depression symptomatology at post intervention and long-term follow-up, in comparison to a waitlist control group. The results of this study were very promising. As a group, children who received the intervention emerged with lower rates of self-reported anxiety, as measured by the SCAS (Spence, 1997) at post intervention, compared with those who were in the waitlist control group. Moreover, when evaluating the effectiveness of this program for those children self-reporting clinical levels of anxiety at pre-intervention, these benefits were even more pronounced. Notably, 75.3% of children in the intervention group who were at risk at pre-test showed significant benefits by being involved in the FRIENDS program. That is, they were no longer self-reporting their anxiety symptoms within the clinical range at post-test. Conversely, more than half (54.8%) of the children in the comparison group who were at risk at pre-test, remained at risk at posttest, scoring above the clinical cut-off on the SCAS.

These results were comparable to those results achieved in the Dadds et al., (1997) and Barrett and Turner (2001) studies when trained clinical research teams implemented the program with high-risk children and those children displaying mild symptoms of anxiety. Hence, this study appears to support the benefits of a school based universal anxiety prevention program. Interestingly the Dadds et al., study found no significant differences on the self-report measures, rather these benefits were identified through diagnostic interviews. However it may be that the self-report measures

implemented in the previous study (i.e., RCMAS and CBCL) were less sensitive to change. Indeed the RCMAS, which was also implemented in the current study, evidenced no significant change or improvement at post-test. Hence the SCAS could potentially provide a more useful and accurate measure in future research. This argument is further strengthened given that the SCAS was normed on an Australian population, and hence may be more relevant in terms of the items and use of vocabulary, than the American normed RCMAS.

Similarly, in the current study the CBCL also evidenced no significant changes from pre to post test likewise in the Dadds et al., (1997) study and Shortt et al., (2001), all of which were conducted using Australian samples. While one explanation may be that this measure is less sensitive to change, competing explanations cannot be ruled out. Overall the rate of response from parents in the current study was low (intervention group = 62.7% at post test dropping to 58.1% at 12 month follow-up, and control group = 20.3% at post test and 19.8% at 12 month follow-up), thus perhaps only the most motivated and committed families responded. While extra measures were taken to encourage parents to return questionnaires (including raffles, and regular reminders in school newsletters), this raises questions as to the representativeness of the responding sample. While this is a common problem encountered in large research trials, conclusions regarding the impact of change based on parental responses should be regarded as tentative.

In terms of levels of self-reported depression, universally there were no significant effects at post intervention. This result is not surprising given the non-clinical nature of a community sample, with scores fluctuating within the 'normal' healthy range.

However when level of anxiety was controlled, so that examination of only clinically anxious children was used (as measured by the Spence Children's Anxiety Scale), a significant reduction in self-reported depression was evident from pre to post intervention for the intervention group only. This suggests that levels of self-reported depression may also be amenable to change via a universal anxiety prevention program implemented by classroom teachers. This appears consistent with recent suggestions that universal prevention interventions may have the potential to promote enhancement in levels of functioning in multiple problem areas (Greenberg et al., 1999). Given the burgeoning research highlighting the shared, overlapping, and associated risk factors amongst various psychopathological disorders, and as in the case of anxiety and depression, the significant degrees of comorbidity, it appears logical that increased resilience and coping in one area would result in similar positive effects in another. Moreover, the moderate correlations evidenced between anxiety and depression in the current study, add to the growing body of literature examining the relationship between these two constructs during childhood and adolescence (e.g., Cole et al., 1998; Orvaschel, Lewinsohn & Seeley, 1995). As suggested by Cole et al., (1998) perhaps depression develops secondary to anxiety as a result of the increasing difficulty of failing to cope with the emotional and social aspects of their anxiety disorder. Hence as the individual learns new strategies to cope and manage their anxiety more effectively, the feelings of hopeless and helpless of depression are alleviated. Obviously further research is needed to explore the direction of this relationship, and the developmental pathways of both anxiety and depression.

Generally, the results indicated that intervention gains were largely maintained over a period of 12 months, as measured by self-reports and diagnostic interviews.

Indeed children's self reports indicated that universally, the intervention group maintained lower scores on the SCAS at follow-up, as did the high anxiety group in terms of reductions in self-reported anxiety and depression. Moreover, evidence of a prevention effect was also demonstrated, with 91.4% of the intervention group not at risk (i.e. not scoring in the clinical range on the SCAS self report measure) at post or 12-month follow-up, compared to 74.8% of the control group. Notably, a greater percentage of children in the control group progressed to "at risk" or "remained at risk" compared to children in the intervention group.

The clinical significance of the effect was further demonstrated through diagnostic interviews. Overall, 85% of children in the intervention group who were scoring above the clinical cut-off for anxiety and depression were diagnosis free in the intervention condition at 12-month follow-up, compared to only 31.2% of children in the control group. Taken together these results suggest that the intervention was effective in producing clinically and statistically significant reductions in levels of anxiety from pre to long-term follow-up. The inclusion of diagnostic interviews is a notable strength of the current study given that many of the previous prevention trials have had a heavy reliance on self-report measures of symptoms rather than actual disorders (e.g., Jaycox et al., 1994, Harnett, 2001).

The finding that one in five children were currently experiencing high levels of anxiety, is also consistent with previous research findings (e.g., Dadds et al., 1997), however the finding that one in four children were rating themselves within the clinical range of depression was somewhat higher than expected. Indeed some studies have cited that only 2-3% of children meet diagnostic criteria for a major depressive disorder (e.g.

Roberts, Lewinson, & Seeley, 1995) However in terms of adolescents, studies have consistently demonstrated that between 21% and 32% of adolescents report mild to severe symptoms of depression (Ehrenberg, Cox, & Koopman, 1990; Oster & Caro, 1990). Given that a significant proportion of the sample was made up of 13 year olds, these results appear consistent with previous research findings. Alternatively, this result may reflect natural fluctuations in depression across time as a result of ecological changes, as such future research may benefit from collecting data on intervening variables.

Notably there were no gender effects interacting with intervention status, suggesting the impact of positive outcomes was not differential for male or female participants. Inconsistent findings regarding effects for gender have been found in previous research with CBT based programs for internalising problems. Some studies have reported more benefits for male participants (Orbach, & Bar-Joseph, 1993; Klingman & Hoddort, 1993), while others have found more benefits for female participants (Barrett et al., 1996), or no gender effects (Dadds et al., 1997). Clearly, replications of the current findings are needed before firm conclusion can be drawn about differential effects for gender.

Before summarising the implications of this study it is important to consider a number of methodological shortcomings and discuss how future research may overcome these. Firstly, due to time and resource constraints, diagnostic interviews were only conducted at 12-month follow-up. Thus, examination of *changes* in diagnostic status over time was not possible. Consequently whether these children initially met the criteria for an anxiety or depressive disorders is unknown. Secondly, given the large sample size

and the high costs associated with diagnostic interviews, interviews were only conducted with children who were at risk for both anxiety *and* depression. As such, children who at pre-test were scoring in the clinical range for self-reported anxiety only, or depression only, were not interviewed. Accordingly, the question of whether children with pure anxiety or depression still met diagnostic criteria remains unanswered. Thirdly, children were the sole informants of diagnostic status and because there was some loss of participants entering the diagnostic interview process, some bias may have been introduced through selective loss of children with or without anxiety problems. Clearly, the present study would have benefited from both child and parent administrations of the ADIS at three different points in time. The absence of the parent ADIS-P interview in the present study limits comparability of the results with those from other studies (e.g. Barrett et al., 1996; Dadds et al., 1997; Silverman et al., 1999, Shortt, 2000). However, this brings to the forefront a very real limitation of large-scale prevention trials and without substantial funding, this is likely to be a very real limitation for future research.

A further limitation rests with the constraints in the teachers timetable, whereby getting teachers to fill out lengthy forms for each student at pre, post, and 12 month follow-up was too time consuming. Rather than lose participation, we omitted teacher reports. While it is generally recommended that multiple sources be used to assess childhood adjustment levels, and given that teacher ratings have proven reliability and validity when identifying students at risk for psychological disorders (Dadds et al., 1997), short succinct measures that can be used by teachers are desperately needed.

With regard to parent sessions, attendance rates were very low. This is a common problem in research especially when services are provided for free. Consequently there

was insufficient power to analyse differential intervention effects for parent session attendees and non-attendees. Reminder letters were sent to all families, therefore we can only speculate as to why families did not attend all sessions. It may be that parents viewed parent sessions as unnecessary since their child was attending the program. Alternatively, the timing of parent sessions may not have been optimal. While some schools made active attempts to provide parent sessions both during the day and at night, not all schools could do this. From general observations it appears that with the provision of more flexible times, more parents attended. While attendance rates may be improved by offering parent sessions at times convenient for the parents, the high commitment families have external to the school system is a real factor that cannot be ignored. Perhaps as an alternative, future research could provide parents with a parent booklet of the key strategies, which is sent home, and enclose a phone number they can contact for further support and assistance.

As in any long-term intervention study, a major problem was attrition. Students were frequently away or absent from class and were not exposed to the entire program or assessment sessions. As no specific measures were made of group session attendance, attrition in the current study was defined as any child who was absent from any of the assessment times. The rate of attrition was 21% over 12 months and did not differ by intervention status. Retained children did not differ from those who were not retained on age, gender, or severity of anxiety or depressive symptomatology. This suggests that future studies will need to plan for some attrition and include adequate funding to maintain maximal retention. Future research would also benefit from measures of group attendance and engagement to examine the relationship of these factors to outcome.

Moreover, as identified by teachers in the current study, teachers and counsellors working in urban settings need to plan both assessment and prevention activities in the middle of the week because Mondays and Fridays have the highest rate of absenteeism.

Results from the acceptability of the intervention for the child participants provide strong evidence for the social acceptability (or consumer satisfaction) of the CBT based FRIENDS program. Because obtaining compliance with interventions can be a problem, positive findings such as these offer encouraging support for similar preventive interventions with school aged children. The acceptability of the intervention from parents and teachers offers further support for interventions aimed at preventing anxiety and building emotional resilience in children. Consumer reactions regarding the utility of program components are important aspects of treatment development that clearly warrant increased research attention. One noteworthy limitation however, is the data collected by teachers. As these were the teachers who implemented the program into their schools setting they could potentially manifest a positive bias to the acceptability of the program. Future research would benefit by also administering social acceptability measures to teachers who are not directly involved in the program implementation.

This study is the first to demonstrate in a controlled universal prevention trial, the positive benefits of a CBT based program on the mental health of young people when implemented by school staff already in place in the community. This method of intervention appears to overcome many of the problems encountered in previous prevention research, such as high attrition rates, and the ethical problems of labelling, which runs contrary to the overall aim of resilience building programs. By training teachers to reduce levels of anxiety and depression, this approach may reduce the demand

and cost of such internalising problems that school staff may effectively manage themselves. This raises the exciting possibility that such interventions could be used as a regular part of the school curriculum. The question of whether brief school based prevention programs are effective in the long term (5-10 years) in reducing prevalence, or whether intermittent interventions are required remains to be demonstrated. The prevention of anxiety disorders and depression symptomatology in children promises to be a fertile area of future investigation. Although preventive intervention research is still a relatively young field and challenging tasks lay ahead, the preliminary results of the current study are encouraging.

CHAPTER SEVEN:

General Discussion

The aim of this chapter is to briefly review the major findings of the two empirical studies conducted. Following this, these findings will be integrated with the literature reviewed in previous chapters as a means to demonstrate how these studies have advanced knowledge in the area of childhood anxiety. Subsequently, the implications of these findings will be discussed and suggestions for future research will be offered. Finally, a conclusion about the prevention of anxiety disorders in children will be presented.

Major Findings

The main objective of this research was to evaluate the long-term effectiveness of a universal anxiety prevention program implemented by schoolteachers. Thus, unlike previous research this study did not select university based group leaders to implement the program, rather the current study utilised teachers already in place in the community. This was in an attempt to apply existing interventions that had demonstrated efficacy under ideal and highly controlled conditions, to a naturalistic environment. With this in mind, the first study investigated the prospect of training teachers to implement a psychologically based intervention. An important factor in this approach was that the level of pre-existing staff competency was unknown. As such, an essential focus of the investigation was ascertaining the role of the FRIENDS training program in enhancing relevant knowledge and confidence to conduct an anxiety prevention program. Given that no relevant measure existed which provided information on baseline levels of relative competencies, this study also sought to develop such a measure. Results on the

reliability and factor structure of the measure demonstrated its utility, especially since it was developed on an adequate number of individuals representing differing levels of experience and expertise (i.e. teachers versus experts in the FRIENDS program and anxiety prevention).

Following the FRIENDS training workshop, teachers were found to demonstrate increased knowledge and self-efficacy in anxiety and the related implementation of the FRIENDS program (proximal effects). Notably these teacher reports approached levels similar to those reported by individuals regarded as ‘experts’ in the FRIENDS anxiety prevention program and significantly higher than teachers who had not undergone the training workshop. This result suggests that following a one-day workshop, teachers can be trained in competencies hypothesised to be relevant and underlying the successful implementation of a universal school based prevention program.

Literature specifically examining the effect of training on increasing levels of knowledge and competence prior to implementing a program for internalising disorders is sparse. In fact, most studies only mention that training was conducted, but whether the training conducted actually produces change over and above pre-existing levels is unknown. The only relevant study found in the literature to do so was a study conducted by Harnett (2001) with a sample of eight teachers. The results of the current study are similar to Harnett’s findings where a one-day training session resulted in significant increases in teacher’s knowledge and confidence to implement an adolescent depression prevention program into a school setting. These findings have important implications regarding the provision of training programs. The release of teachers to attend training workshop is costly, hence there is increased pressure to keep class release time to a

minimum. The current study demonstrated that from attendance at a one day workshop teachers could reach acceptable levels of knowledge on a common problem occurring in childhood, a problem which has implications for students in terms of their academic achievement, social and emotion development (Ialongo et al., 1994; 1995; Kashani & Orvaschel, 1990; Messer & Beidel, 1994; Strauss et al., 1988; Wittchen et al., 1998).

Study 1 also explored the intermediate effects of training on the ability of teachers to implement the program according to the protocol outlined in the FRIENDS program manual (intermediate effects). This study found that teachers demonstrated a high level of fidelity as rated by both the participating teachers themselves and independent observers. These findings have a number of implications. Specifically, if teachers can be trained to a level necessary for successful implementation of a program according to specified protocol, they could potentially be the ideal implementation agents for providing mental health services given their access to large numbers of individuals. Moreover, given that teachers are second only to parents in shaping children's development (Burns & Hickie, 2002; Cowen et al., 1996 cited in Evans, 1999), their position for influencing the mental health of recipient children in a positive direction is unmistakable.

While teachers demonstrated their ability to adhere to intervention protocol, the effectiveness of the intervention in terms of outcomes for participating children remained to be demonstrated (distal effects). Study 2 sought to empirically answer this question using a controlled prevention trial methodology. The current study found that for children who completed the FRIENDS program, significant reductions in self-reported levels of anxiety were found both universally as well as for those children who scored

above the clinical cut-off (high anxiety group) on the Spence Children's Anxiety Scale (SCAS; Spence, 1997) at post treatment and 12 month follow-up. Children in the high anxiety group also demonstrated significant reductions in their self reported levels of depression in the intervention condition only. Additionally, 85% of children in the intervention group who scored above the clinical cut-off on depression (CDI, Kovacs, 1981) and anxiety (SCAS; Spence, 1997) were diagnosis free in the intervention group at 12-month follow-up compared to 31.2% in the control group. The findings of this study add to a growing body of research suggesting that group CBT programs incorporating parental involvement are an effective means of reducing anxiety problems in children (Barrett et al., 1996; Cobham et al., 1998; Shortt et al., 2001). The current work also extends research into the prevention of anxiety disorders in children by demonstrating that existing systems of the school are effective vehicles to reduce anxiety symptomatology and prevent the onset of anxiety disorders that had previously only been demonstrated under controlled conditions with specialist university teams (Dadds et al., 1997; Barrett & Turner, 2001).

Not all of the universal prevention interventions implemented by schoolteachers have found such positive results (Clarke et al., 1993; Harnett, 2001). A number of reasons could account for the differential success of the current intervention, each of which taken together strengthens outcomes. For example, the current study sought to provide extensive training of interventionalists, not only in the content of the FRIENDS program but also in critical interpersonal and group process issues (e.g. reinforcement, normalisation, modelling of skills, behaviour management etc). In Clarke et al.'s (1993) study, teachers received only two hours of training. While teachers received a full day

workshop in the study conducted by Harnett (2001), no mention of specific training into critical interpersonal and group process skills were made. Other factors include the number and duration of sessions. In the current study, the FRIENDS program was implemented over a ten-week period (each session running for 75 minutes) with two booster sessions implemented one month and three months following the initial program. Comparatively, Clarke et al.'s (1993) study consisted of only five sessions and, due to constraints of the school timetable, Harnett's (2001) adaptation of the RAP program (Shochet et al., 1997) regularly combined sessions running them within a single 80-minute period. Moreover, Harnett's study also encountered problems with the school's timetable, which was run using a 10-day program. This resulted in sessions being scheduled at least two weeks apart. Consequently these interventions may not have been of sufficient duration, frequency or intensity to bring about change. Other differences between the current study and those of Clarke et al., (1993) and Harnett (2001) include the use of a larger sample size consisting of both male and female participants.

Feedback from participants on usefulness of program and level of enjoyment was consistent from feedback about the FRIENDS program in a control treatment trial on the FRIENDS program (Barrett, Shortt, Fox, & Wescombe, 2001). The results from this study fill a noticeable gap within the childhood anxiety literature, where the majority of studies have ignored issues of social validity, especially in regard to intervention acceptability (Barrett et al., 2001; Christopher, Nangle, & Hansen, 1993). Apart from evaluating the intervention for a particular group, long-term benefits may accrue from systematic investigation of variables that influence acceptability of treatments more generally. It may be valuable to explore variables that contribute to acceptability of

intervention so that these can be incorporated, whenever possible, into the treatment process.

Implications of the Findings for Psychological Practice

These findings have wide ranging implications for psychological practice. Firstly, a major concern surrounding universal prevention models is that participants at risk may not receive sufficient exposure (duration or intensity) to alter the pathological developmental pathway (Greenberg et al., 1999). The findings of the present work support the utility of universal prevention. The findings not only suggest that children at risk for anxiety can demonstrate reduced symptoms and diagnoses through a universal model, but that involvement in a universal prevention program appears to prevent children from developing an anxiety disorder over a one year period. Beyond this, these findings also extend to reductions in self-reported levels of depression for those children with comorbid symptoms. Thus, the cost effectiveness of employing a single universal program that reduces levels of both anxiety and depression is notable.

Secondly, it was found that teachers could successfully deliver a psychological intervention as it was designed to be implemented. This has far reaching implications for the delivery of mental health interventions. That is, school based programs have the potential to reach large numbers of children over a relative short periods as well as reach individuals in increasingly remote areas where access to adequate mental health facilities is limited. In addition, a school based prevention program would help to overcome many of the problems associated with clinical practice such as lengthy waiting lists, and reaching those in need, specifically because *all* children in a grade are targeted. Teacher based interventions are also less expensive to implement than the high costs associated

with psychologist based interventions. Thus, this method of prevention appears to be a more cost-effective alternative to reducing the overall incidence of anxiety disorders within the community.

The current work has identified the school setting as the ideal setting for the creation of effective programs. Previous research has suggested that teachers (along with parents) often have difficulty in detecting anxiety difficulties given that they are less visible than their externalising counterparts (Dadds et al., 1997). Thus educational efforts to enhance detection and promote positive coping skills constitute proactive approaches to anxiety problems. Moreover, as research into protective factors has demonstrated, the role of teachers as protective buffers in the lives of children is significant (Freedman, 1993; Radke-Yarrow & Brown, 1993; Wallerstein & Blakeslee, 1989; Werner & Smith, 1992). Hence, training these role models with important coping skills serves to strengthen the positive impact teachers can make on at risk children. Further, schools are an ideal source of well-adjusted peers who can serve as valuable role models as well as sources of friendship and support. Teaching children the skills in the schools may also encourage more practice and generalising of skills to everyday situations, thereby enhancing the long-term effects of the program.

Although schools are the logical choice given the accessibility to large numbers of children able to receive the program, and the factors mentioned above, other practical realities need attention to maximize success. One important consideration that should not be overlooked is the identification of likely candidates for training staff and supervising the delivery of preventive programs. An ideal member is the school counsellor or guidance officer. Guidance officers focus their attention on student growth, needs, tasks,

and interests while being cognizant of age-specific developmental stages (Hains, Jandrisevits, Theiler & Anders, 2001). Developers of preventive programs should work in concert with school counsellors to maximise efficient administration and delivery of the models.

In terms of developmental timing, our findings lend support to the ‘earlier is better’ aphorism. This may perhaps also explain why there has been inconsistent findings in the prevention of internalising disorders to date where many of the programs have intervened during the period of adolescence with less effective results (Harnett, 2001, Clark, 1993a; 1993b; Clark et al., 1995) Our findings are consistent with a number of studies conducted during early to middle childhood which have found treatment or preventive benefits (e.g. Barrett, Dadds, & Rapee, 1996; Barrett, 1998; Cobham, Dadds & Spence, 1998; Dadds et al., 1997; Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; Last et al., 1998; Shortt, Barrett & Fox, 2001; Silverman et al., 1999) with this age group. Given that anxiety disorders have a relatively early age of onset (Kovacs et al., 1989; Last et al., 1992; Giaconia et al., 1994) , with a sizeable percentage of the adult population recalling the onset of anxiety disorders during childhood and adolescence (Bourden et al., 1988; Keller et al., 1992; Pollock et al., 1996), the current study supports the case for preventive efforts targeted early in life. Thus, it appears that future researchers are advised to focus on the period of childhood as the optimum time for prevention. However at this time, what is not clear is whether prevention is most effective if applied to risk factors that operate in infancy, or in early to middle childhood, or whether a lifespan approach is required with multiple intervention

points. These answers will not become clear until further longitudinal studies are conducted.

Future Research Directions

As mentioned above, long term follow up is essential. As noted by Greenburg et al (2001) it may take time to see prevention effects. For prevention effects to emerge, it is necessary to follow participants through a period of elevated risk for psychological difficulties. It is intriguing that several of the studies with longer term follow up (Dadds, et al., 1999; Gillham et al., 1995) found increased prevention effects over time. These effects might have been missed had researchers ended their studies at post assessment or 6 month follow-up. Second it is important to know the duration of effects. The longest study of prevention effects for anxiety symptoms is Dadds et al., (1997) and for depression (Gillham & Reivich, 1999) both of which did not extend beyond the 2-year follow up. Knowledge of the duration of effects can guide decisions about the need for, and timing of, booster sessions and can further inform the cost-benefit analysis of targeted versus universal interventions.

Greenberg et al., (2001) argue for the need to provide independent replication of intervention effects. This is a major limitation of the current state of the prevention literature. That is, that the effects of most intervention programs have not been replicated by independent investigators. Independent replications of successful programs should be a high priority for future research.

In the future it will be important to dismantle effective interventions to determine which ingredients matter and which matter most (Gillham, Shatte, & Reivich, 2001). Many of the successful programs teach similar skills (exposure, cognitive restructuring,

problem solving, building social supports). Comparing interventions with and without specific intervention components is not just a scientific exercise. It allows researchers to develop more efficient and powerful interventions. This is particularly important for school-based interventions that often compete with other educational programs for student and teacher time and other limited resources.

The next generation of prevention research should begin to examine factors in the training process and in the host systems (schools, community agencies) that affect the implementation and dissemination of preventive intervention. Agency acceptance may be affected by the level of support for the program by key administrative staff. Elements of the training process for new interventions also may have profound effects on the effectiveness of the intervention. Without ongoing training and consultation, intervention staff may not be able to adaptively cope with the expected and unexpected problems which arise during the delivery of a prevention program. Research needs to examine these implementation and dissemination processes with a similar degree of scientific rigor as is apparent in clinical trial research (Lochman, 2001)

Future research may also examine the influence of community contexts and school resources on intervention effects. A fundamental task of prevention research is to examine how efficacy varies as a function of environmental or participant characteristics. Within urban schools and communities, there is considerable variation in resources available and social organization (Greenwalk, Hedges, & Laine, 1996). In line with this, examination of the cultural robustness of the prevention program with individuals from culturally diverse backgrounds is needed, given that the majority of participants in the

current work were from white Anglo Saxon backgrounds, thus the generalisability of these findings are limited.

Final Conclusions

The emerging field of prevention science is developing a selection of interventions that can be fitted to children at various levels of risk for later maladjustment. Over a 12-month period the program produced a significant reduction in levels of child anxiety and yielded high consumer satisfaction. More importantly the program established strong collaborative relationships with participant families and teachers and created an upsurge of support in the community. It is anticipated that these new community based interventions will feature strongly in future endeavours.

Prior to seeing large-scale universal prevention programs become widespread, the infrastructure for preventive research must be in place. Schools, communities, and government sectors will need to perceive the prevention of mental disorders as a priority so that co-operation with researchers is enhanced. Moreover, adequate funding is necessary to sponsor such large-scale, time and labour intensive projects (Spence & Donovan, 2000).

The prevention of anxiety disorders and depression symptomatology in children appears to be a fertile area for future investigation. While preventive intervention research is still a relatively young field and many challenging tasks lay ahead, the preliminary results of the current study are encouraging. This study is the first to demonstrate in a controlled universal prevention trial to positively influence the mental health of young people, demonstrating the real world benefits of using such programs in the context of Australia's existing education services.

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APPENDIX A:

Ethical Approval Form for current PhD Research Project and Consent to Conduct
Research from Catholic Education

APPENDIX B:

FRIENDS Knowledge and Self Efficacy Scale,
Consents Forms (control group vs Workshop Participants),
FRIENDS Training Workshop Feedback Questionnaire

Griffith University

THE FRIENDS PROGRAM Time One

Name: _____

Job Title: _____

Qualifications: _____

Place of employment: _____

Work address: _____

Phone Number/s: _____

Fax Number: _____

Email: _____

- **How many years experience have you had working with children or teenagers?** _____
- **Today's Date:** _____
- **Time (in hours and minutes):** _____

CONSENT FORM (Workshop Participants)



The following questionnaire is designed to help us evaluate the FRIENDS training program and subsequent implementation of programs in schools and other settings.

Information on the training program is important in learning how successful we are in teaching the major principles involved in prevention programs targeting anxiety in children and building emotional resilience and coping. We ask that you complete a short questionnaire prior to and following the training program. This helps us to determine the extent to which you already have knowledge in certain areas, and how successful we are in helping you acquire knowledge in areas where you have had less training.

We are also interested in gathering information on how effective you found the training to be in *preparing you* for implementing the FRIENDS program into your individual setting. Training packages focusing on the prevention of anxiety is a relatively new field, therefore feedback on our training program is essential.

I understand the purpose of this research project and that the information I provide in this questionnaire will be used to evaluate the effectiveness of the FRIENDS training program. I also understand that no information will be used that identifies me and that I may withdraw at any time with no loss to myself.

Signed: _____

Date: _____

CONSENT FORM (Non- Workshop Participants)



The following questionnaire is designed to assist in the evaluation of the FRIENDS training program, which is the first stage of a research project aiming to evaluate a universal prevention program for childhood anxiety.

Information on the training program is important in learning how successful we are in teaching the major principles involved in prevention programs targeting anxiety in children and building emotional resilience and coping. You have been selected as a member of the *control group*. This means that you will not be receiving training, rather you will be asked to complete a short questionnaire on two occasions with a time interval between the two administrations of at least 8 hours but no longer than 24 hours. This serves to examine your current level of understanding of childhood anxiety and prevention, and to see how stable this knowledge is across a short interval.

I understand the purpose of this research project and that the information I provide in this questionnaire will be used to evaluate the effectiveness of the FRIENDS training program. I also understand that no information will be used that identifies me and that I may withdraw at any time with no loss to myself.

Signed: _____

Date: _____

PART 1: Ratings of Confidence In Implementing The FRIENDS Program into your setting

Please read the questions carefully and place a tick in the box which best reflects your answer.

1. My current level of experience in facilitating group programs with children is:

Extremely High ☐ Very High ☐ Quite High ☐ Somewhat Limited ☐ Extremely Limited ☐

2. My perceived level of ability in facilitating group programs with children would be:

Extremely Limited ☐ Somewhat Limited ☐ Quite High ☐ Very High ☐ Extremely High ☐

3. Based on your current level of knowledge of anxiety, *how confident* are you right now that you have the necessary *level of knowledge* needed to prevent anxiety in children using the FRIENDS program?

Extremely Confident ☐ Very Confident ☐ Moderately Confident ☐ Slightly Confident ☐ Not at all Confident ☐

4. Based on your existing understanding of group programs aimed at preventing anxiety difficulties in children, *how confident* are you right now that you would have the *necessary skills* to competently run the FRIENDS program in your setting?

Extremely Confident ☐ Very Confident ☐ Moderately Confident ☐ Slightly Confident ☐ Not at all Confident ☐

5. How confident are you right now that you will be able to overcome existing obstacles (such as limited resources of time, space, preparation, skills, knowledge, support) to implement the FRIENDS program into your setting?

Extremely Confident ☐ Very Confident ☐ Moderately Confident ☐ Slightly Confident ☐ Not at all Confident ☐

PART II: Knowledge Test

Please circle the response the best reflects your answer

1. What is anxiety?
 - (a) **A reaction that is caused by an immediate threat in our current environment**
 - (b) **A normal reaction, that can sometimes be out of proportion to threats from the environment**
 - (c) **A severe medical problem, that usually requires medication**
 - (d) **A reaction that can lead to panic which can be fatal**
 - (e) **A reaction caused when there are too many demands placed on an individual**
 - (f) **Don't know**

2. How can fear be distinguished from anxiety?
 - (a) **These emotions cannot be separated, they are the same emotion**
 - (b) **Fear is a stronger emotion than anxiety**
 - (c) **Anxiety is a stronger emotion than fear**
 - (d) **Fear is usually associated with an immediate situation, while anxiety is usually directed towards the past or future**
 - (e) **Don't know**

3. Individuals who experience an anxiety disorder as a child generally grow out of the problem as they get older
 - (a) **True**
 - (b) **False**
 - (c) **Don't know**

4. Anxiety disorders in children are more prevalent than depressive disorders or substance abuse disorders
 - (a) **True**
 - (b) **False**
 - (c) **Don't know**

5. Universal prevention programs are programs which:
 - (a) **Are implemented to all children regardless of their risk status for a particular problem**
 - (b) **Are implemented across the world**
 - (c) **Are implemented with all children who are identified at risk for developing a particular problem**
 - (d) **Don't know**

Please answer the following questions briefly in the space provided

6. What are four major features of a person's experience of anxiety?

Answer or tick "I don't know" box

Don't know

☐

7. Describe two important skills that help children regulate the physiological (bodily) sensations they experience with anxiety

Answer or tick "I don't know" box

Don't know

☐

8. Briefly describe three skills or techniques which may help children cope with difficult or anxiety provoking situations

Answer or tick "I don't know" box

Don't know

☐

-
9. Briefly describe the concept of teaching participants to evaluate their performance in terms of 'partial success'

Answer or tick "I don't know" box

Don't know

☐

10. List three ways in which parents and teachers can play an active role in helping children increase resilience to stress and change

Answer or tick "I don't know" box

Don't know

☐

11. Briefly describe four causes (or etiological explanations) for the development of anxiety in children.

Answer or tick "I don't know" box

Don't know

☐

Thank you very much for your cooperation in completing this questionnaire



PART A: GENERAL FEEDBACK FOR TRAINING WORKSHOP

Please circle the response that best reflects your answer for each of the following questions.

1. The FRIENDS training program was useful

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

2. The FRIENDS training program was enjoyable

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

3. The FRIENDS training program was presented in a manner that was easy to understand

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

4. The FRIENDS training program met my expectation

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

5. The FRIENDS training program was well paced

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

6. The FRIENDS training has motivated me to implement the FRIENDS program into my setting

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

7. The workshop facilitator was effective in their role of delivering the training program

Strongly Agree ☐ Mildly Agree ☐ Unsure ☐ Mildly Disagree ☐ Strongly Disagree ☐

APPENDIX C:
FRIENDS Program Integrity Checklist

APPENDIX D:

Scree Plot for Scale Development of the FKSES



APPENDIX E:

Means and Standard Deviations of the FRIENDS Knowledge and
Self-Efficacy Scale for the Trained Teachers, Experts and Control Teachers

Table A1.

Means and standard deviations for the FRIENDS knowledge and self-efficacy scale for the teacher control group, teacher workshop group and expert group at time 1 and time 2

Group	Self-Efficacy scale		Knowledge Scale	
	Pre (Time 1)	Post (Time 2)	Pre (Time 1)	Post (Time 2)
Teacher Control (N =36)				
M	6.36	6.36	3.42	3.39
SD	2.70	2.76	2.45	2.49
Trained Teachers (N = 36)				
M	5.47	11.50	3.42	12.56
SD	3.05	2.02	2.47	2.20
Experts (N = 22)				
M	12.45	12.41	16.27	16.27
SD	2.34	2.34	1.03	1.03

APPENDIX F:
FRIENDS Social Acceptability Measures
for Children, Parents and Teachers

APPENDIX G:
Consent Forms

APPENDIX H:

Ethical Procedures for Diagnostic Interview Process

Hayley Lowry-Webster
(07) 5594 8119
0412 719 413

To the parents of _____

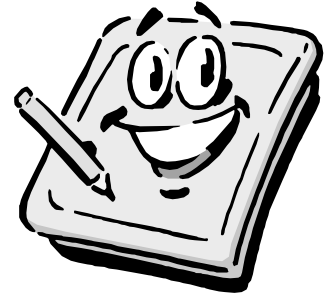
As you will recall your child was involved in the FRIENDS program in Term 1 last year, which aimed to teach young people to cope with worries and difficult situations. As part of our ongoing evaluation of the FRIENDS program, we are now conducting our long term follow up measures with students and their parents. Please find enclosed a copy of the parent questionnaire package, and a reply paid envelope for your convenience. We thank you in advance for your cooperation and support.

In completing self-report questionnaires early in term one, a number of students indicated they were experiencing a number of worries. The FRIENDS program has an ethical duty to follow up these students after their involvement in the program. This process involves an interview to determine whether the questionnaire results are indicative of an ongoing problem, a bad day at the time of completing the questionnaire, or perhaps a misinterpretation of the questions asked and thus not indicative of any real problem or concern.

Your child is invited to be involved in this interview process to review how things are going for them now one year later. Attached overleaf is a consent form for you to complete and return to the school directly. Should your child indicate s/he is experiencing significant worries or sadness you will be notified. At this time you will have the opportunity to discuss the interview results and options for providing assistance for your child. Should you have any further questions or concerns regarding this process, you are welcome to contact myself, the psychologist heading the project at Griffith University, on (07) 55 94 8119 or 0412_____.

Yours sincerely,

Hayley Lowry-Webster
Psychologist and PhD Candidate
Griffith University
Gold Coast Campus



The FRIENDS Program

CONSENT FORM FOR PARTICIPATION IN THE LONG TERM FOLLOW UP INTERVIEW PROCEDURE

I/we _____ give consent for our child
_____ to be involved in the long term follow up interview
for the FRIENDS program. I/we understand that all information obtained is in the
strictest confidence and if any difficulties are identified, that we will be contacted directly
to discuss the interview results.

Signed: _____

Dated: _____
